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ABSTRACT

An agenda for research on financial issues in graduate education is proposed for the National Commission for Student Financial Assistance, based on the stipulations of Public Law 96-374, Section 491, part (7)(A). Research needs are as follows: (1) to determine the extent to which students may be dissuaded from pursuing graduate education on financial grounds to the detriment of the major fields of knowledge and the nation as a whole; (2) investigate existing and projected levels of graduate student indebtedness, expectations for borrowing, and implications; (3) analyze trends and shortcomings in the sources of support available to students for the financing of graduate education; (4) consider the financial and educational needs of persons from disadvantaged backgrounds; and (5) assess the desirability of modifying existing federal fellowship and assistance programs or establishing a new federal graduate student assistance program. The following sources of support to students are compared by type and level by discipline: the federal government; state and local governments; foundations, corporations, and other private entities; higher education institutions; and students and their families. The relevant text of the legislation is included. (SW)

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ED228958

FINANCIAL ISSUES IN GRADUATE EDUCATION AND AN AGENDA FOR RESEARCH

[Public Law 96-374 7(A)]

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Prepared for the National Commission on Student Financial Assistance

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7. (A) The Commission shall, in consultation with appropriate higher education associations and representatives from institutions of higher education, collect data necessary for the study of graduate education throughout the United States required by this paragraph. Such study shall--

(I) Analyze trends and shortcomings in the sources of support available to students for the financing of graduate education, and compare the nature and level of support available in the various academic disciplines, including sources of support from student assistance and research programs sponsored by--

(i) the federal government,
(ii) state and local governments,
(iii) foundations, corporations, and other private entities, and
(iv) institutions of higher education, and in addition, consider the resources of the students and the students' families;

(II) Examine the extent to which students may be dissuaded from pursuing graduate education on financial grounds, to the consequent detriment of--

(i) the major fields of knowledge which need to attract the most able and talented students of each generation if they are to remain strong and vigorous; and

(ii) the Nation as a whole, if some of its most promising students are precluded because of financial circumstances from developing their capacities and abilities to the fullest possible extent;

(III) Investigate existing and projected levels of graduate student indebtedness, and consider the implications (for the students involved and for the health of graduate education generally) or existing and projected expectations for borrowing to meet the costs of graduate education;

(IV) Assess the desirability of modifying existing federal fellowship and student assistance programs or establishing a new federal graduate student assistance program in which the selection of students and the amounts of their awards are based on merit or financial need or both particularly with regard to the special needs of students in the humanities and social sciences or other disciplines; and

(V) Examine and assess the financial and educational needs of individuals from disadvantaged backgrounds in order to enhance their participation in graduate and professional education and their potential for employment in occupational areas where these individuals are underrepresented.

(B) In conducting the study described in this paragraph, the Commission shall consult with representatives of the National Science Foundation, The National Endowment for the Humanities, The National Endowment for the Arts, and Representatives of higher education institutions and associations, learned societies, and professional organizations.

Introduction

In preparing this report, we have taken two liberties with Section 491, part (7)(A), PL96-374. First, using the original language of the legislation, we have paraphrased the five sections of the mandated study, so that each can be expressed, in parallel structure, as a topic together with the context in which it is to be addressed. Our purpose was to clarify in our own minds the intent of each section and to make our approach--our reading of each section--clear to the Commission. Second, we have also re-arranged the five sections, for the purpose of discussion, in what we consider to be a more natural and appropriate order. Finally, both because there is some topic overlap across sections (I) and (V) in the law and because we have recognized the need for a "context" at certain junctures, the five main parts of the paper are not separate, self-contained sections; pieces of (I) and (V), for example, are imbedded in all five parts.

In our estimation, the principal matter to which the legislation addresses itself is contained in 7(A) (II). This section in fact poses related questions: To what extent are students dissuaded from pursuing graduate education on financial grounds, and is the extent sufficient to be of detriment to the major fields of knowledge and to the Nation as a whole? The answer to those questions, taking into consideration the appropriate meaning of "financial grounds," will in large measure shape the analyses and assessments required for the remaining four sections. This proposition seems obviously true to us with respect to trends and shortcomings in all sources of financial support, to the desirability of modifying existing federal sources and programs, to the question of student indebtedness, and only less obviously so with respect to the needs of persons

from disadvantaged backgrounds, whose greater participation in graduate education leading to employment in areas where they are underrepresented may depend on somewhat different or at least more subtle considerations.

Except as otherwise noted, by "graduate education" and "graduate school" we will mean doctoral study mainly in the arts, sciences, and engineering. Masters-level programs in these disciplines and principal professional schools (business, law, medicine) face either a separate population or different financial circumstances. Even within Ph.D. programs in the arts and sciences, however, to understand and appreciate the financial terrain and concerns, it will be necessary at several points to disaggregate the general heading of "graduate education" into smaller groupings--by discipline and by type of institution.

It is also important to introduce and to delineate at this point two general principles or criteria for public involvement in financing higher education, criteria that we have employed in our research and assessments as well as criteria that we urge the Commission to use in making its recommendations: (1) national interest or "spillover" effects, cases in which the benefits of graduate education accrue not only to the individual degree recipient but also to society as a whole; and (2) access, the availability of funds to young people who for the most part do not possess financial resources sufficient to undertake graduate study.

The first criterion--appropriately, in our judgment--emphasizes quality; the second one emphasizes financial circumstance, without special attention to merit. Yet the argument for (1) is consistent with attempts to increase the participation of disadvantaged students, who may be presumed to lack

financial resources, a goal that is certainly in the national interest. And the argument for both (1) and (2) must take into consideration the detriment to "human capital formation," a highly significant determinant in the economic growth of this Nation for the last 120 years, if young scholars are denied access to graduate education (and to the particular program or institution of their choice) on financial grounds.

There is one important sense, however, in which (1) and (2) above are separable issues: the "national interest" may well dictate that an explicit or implicit subsidy be one element of the array of financial aid programs, principally to encourage selected individuals to enter and to complete graduate programs, whereas access may not require a subsidy, but merely the availability of financial resources that would permit those without collateral to pursue their career objectives. Subsidy, in this formulation, is directed toward quality; access, to the extent that it is primarily a matter of removing financial barriers, may be independent of the question of subsidy.

Finally, it is understood that this paper deals almost exclusively with financial matters, complementing a descriptive paper being drafted by Paul Butler-Nalin, Director of the Graduate Research Project under the sponsorship of the Consortium On Financing Higher Education (COFHE). That piece covers (longitudinally) graduate and undergraduate enrollments, test volumes, the number of institutions and programs, degrees awarded, basic financial support patterns, and major legislative actions related to financial aid.

Part One

We recommend, therefore, that the Commission, as a first order of business, undertake to determine:

THE EXTENT TO WHICH STUDENTS MAY BE DISSUADED FROM PURSUING GRADUATE EDUCATION ON FINANCIAL GROUNDS TO THE DETRIMENT OF:

(i) THE MAJOR FIELDS OF KNOWLEDGE

(ii) THE NATION AS A WHOLE

We take as axiomatic the proposition that the major fields of knowledge cannot remain strong and vigorous if they fail to attract and train the most able and talented students of each generation. We also think it unnecessary to demonstrate that the Nation as a whole suffers if some of its most promising students are precluded because of financial circumstances from developing their capacities and abilities to the fullest possible extent. The drafters of the legislation also appear to have taken these two propositions as self-evident.

It is necessary, however, to determine whether graduate schools are in fact failing to attract the most able students and to examine the present and future consequences for the major fields of knowledge, particularly in the matter of faculty replacement, but also with regard to the vitality of both advanced research and undergraduate education, because for universities the health of graduate education and graduate programs is a necessary and important element in the retention of a first-rate faculty, the maintenance of research facilities and library, and the quality of the undergraduate curriculum. Graduate education cannot be viewed in isolation.

That undergraduates in general have shied away from graduate school in the last ten years is well documented. Statistics from the Council of Graduate Schools (CGS) as well as reported enrollments at individual institutions confirm a downward trend; 1973 was the peak year for the number of doctorates awarded by U.S. institutions (1972 was the peak year for male degree recipients, but the annual number of degrees awarded to women has continued to rise. See the Technical Appendix to William G. Bowen's Report on Graduate Education, 1981, and annual Summary Reports of the Survey of Earned Doctorates from the National Research Council, Peter Syverson, Project Director: A recent NCES study provides trends in earned degrees by level, sex, type of institution, and field--including professional degrees--from 1971-80. See submitted source documents); The Educational Testing Service has reported declines in the number of individuals taking the advanced portion of the Graduate Record Examination for a number of disciplines; and information from the CGS Fall Enrollment Survey shows a substantial decline in applications in the last decade (see Graduate Admission Trends Report, 1970-1980, from the COFHE Graduate Research Project, March 1982 as well as CGS, ETS, and NCES reports). An expansion of most or all of these points is contained in the Paul Butler-Nalin paper (referenced in the Introduction), and we are refraining from further comment in our paper.

The aggregate data on applications and enrollments mask important shifts across fields, however. The observed declines are not uniform by discipline, with some actual increases coming in engineering, several applied science areas, and economics. There has also been some shifting by type of institution (delineated below). One of the most significant patterns--for engineering

especially, but also in many science areas and in economics--has been the steady increase in applications and enrollments from foreign students, the absence of which would make the declines much more pronounced. There have been substantial increases in applications to the major professional schools--law, business, and medicine.

Two central questions arise from the trends noted above: (1) Why have students turned away from doctoral programs--and what role does the financing of graduate education play in the decision-making process? (2) Are the most able or talented students disproportionately represented in the pool of those rejecting graduate education? In seeking answers to these questions, we think that it is crucial to understand both current ways of financing graduate study and the rough divisions within the 300-plus Ph.D.-granting institutions in this country.

There is no "one way" of meeting expenses of graduate work; the sources, requirements, and levels of support vary by discipline and institution. (The 1981 Summary Report of Doctorate Recipients compiled by Peter Syverson at the National Research Council contains excellent data on the primary sources of support by field, sex, race, and institutional category for the 31,000 doctorate recipients in 1981; see especially pages 12-45.) Current sources, trends, and the mix of support are covered more fully in Part Three. Let us just note at this point that "graduate education" is in reality a highly complex, but disaggregated, matrix, whether the topic is financial aid, academic program, or employment. Generalizations are often misleading; the common core, quite small. (The late Robert Hutchins of The University of Chicago once stated that the only thing that held his individual depart-

ments together was a central heating system.)

Although 318 institutions awarded Ph.D.'s in 1980, twenty of these schools (5 percent of the "market" in one sense) produced over 30 percent of the total doctorates granted. These same schools probably account for well over half the faculty at the approximately fifty major research institutions in this country (the members of the Association of Graduate Schools or AGS; these fifty universities constitute 15 percent of the "market" but turn out 60 percent of the doctorates each year). Figure 1 on the following page is a rough presentation of the segmentation.

The "direct" costs of graduate education are not uniform across institutions. By direct costs we will mean the level of tuition. Living expenses are first of all much more standard at these 300 schools but, more importantly, they are also not a true cost of education, though they are, to be sure, real expenses that must be covered: individuals would be buying food, clothing, and shelter regardless of the academic status. The "indirect" costs of graduate education are the earnings foregone while being in school, a factor we will return to below, since job market considerations may loom large for many students with both a BA/BS degree and substantial undergraduate borrowing. Table 1 provides 1981-82 tuition charges at selected institutions. The point here is that direct charges could be anywhere from $0 to over $7,000. At lower levels of tuition, such as those faced by many graduate students attending public universities in their state of residence, financial aid requirements (and the sources, as we shall see below) are much different than for a student or applicant looking at perhaps a $30,000 tuition bill over four years.

Figure 1.

SEGMENTATION OF THE 300+ Ph.D.-GRANTING INSTITUTIONS

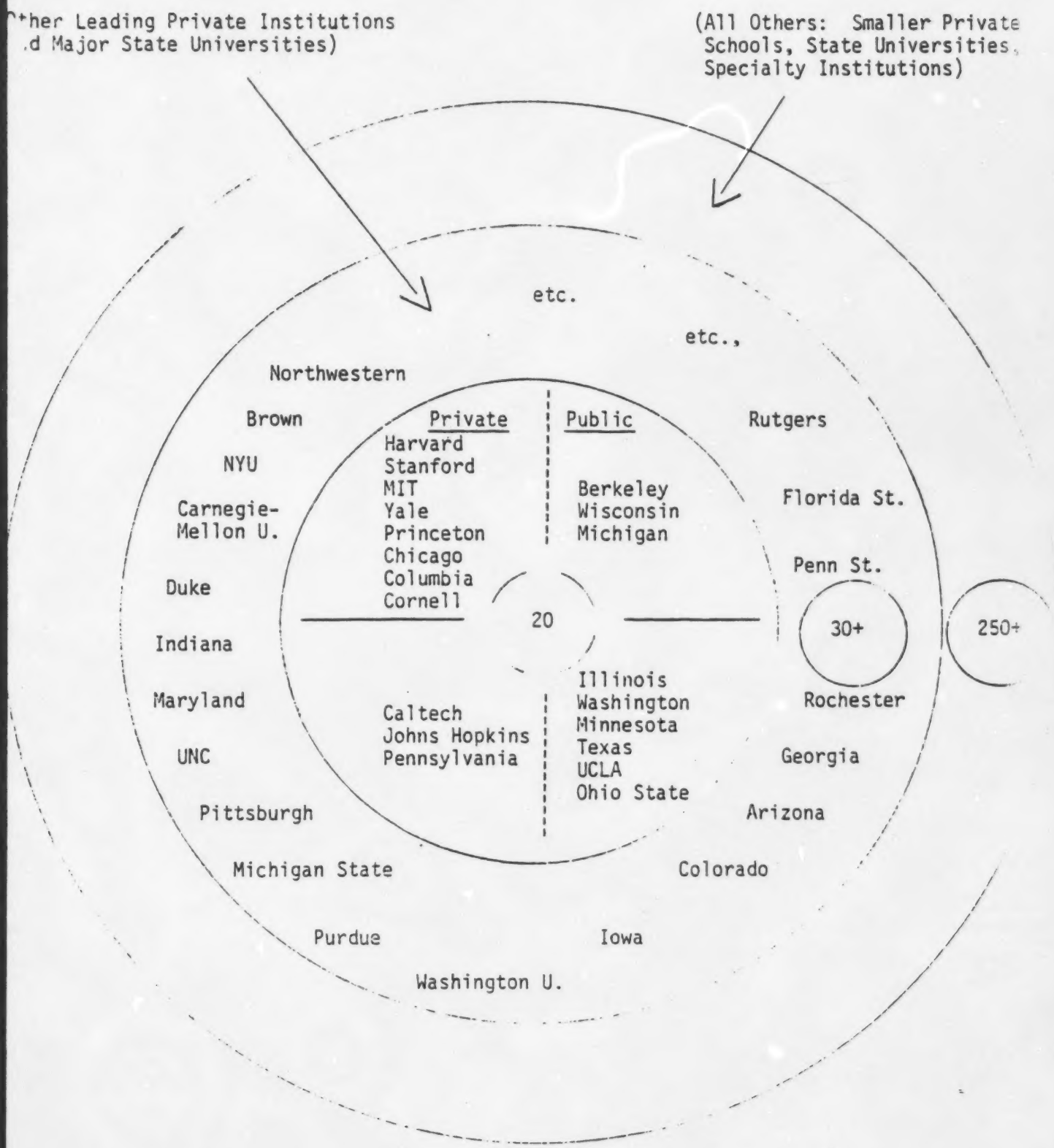

TABLE 1:

GRADUATE TUITION LEVELS AT SELECTED UNIVERSITIES FOR 1981-82
(for Full-time Enrollment)

	Resident	Non-resident
Duke University	$ $5400*	$
Harvard University	6930	
Northwestern University	6885	
Ohio State University	1455	2800
Princeton University	7350	
Stanford University	6285	
U. C. L. A.	846	3726
University of Arizona	0	2950
University of Chicago	6315	
University of Kansas	918	2234
University of Michigan	2638	5594
University of North Carolina	689	2513
University of Texas-Austin	452	1532
University of Washington	1239	3600
Yale University	6960	

*Tuitions in this column are for private institutions, thus no distinction is made as to residency status.

Source: Peterson's Annual Guides to Graduate Study 1982

Although the levels of tuition, as indicated on Table 1, are not uniform, the trend is: the direct cost of graduate education has risen dramatically across the board since 1970. Table 2 displays tuition increases at twenty leading graduate schools from 1970 to 1982 (taken from a COFHE Graduate Research Project report; other major state universities show similar increases, though in general not as steep as with private institutions because some state monies have offset partially the rising costs.

Traditional sources of graduate-student support--national (public and private) fellowship competitions, sponsored research, teaching assistantships, and institutional fellowships--have not only not failed to keep pace with rising costs over the last dozen years, many have suffered actual declines in the number of students (and real dollars per student) benefited. The number of National Science Foundation Fellowships awarded annually has fallen by two-thirds since 1970; Ford Foundation fellowships have disappeared entirely; the Danforth Foundation has phased out its major long-term effort (3500 fellows supported in 28 years, many of whom were in the humanities and social sciences); the Woodrow Wilson National Fellowship Foundation terminated a program that had sponsored about two hundred fellows a year over a twenty-year period.

Funding in even the extant programs has not kept pace with inflationary costs. National Science Foundation Fellowships, for example, pay less than half of tuition (and perhaps only a fourth of full costs because tuition income does not come close to meeting the real costs of education) at the institutions the vast majority of NSF fellows attend. Some new private initiatives, notably the Charlotte Newcombe Foundation Dissertation

TABLE 2:

TUITION RATES AT COFHE GRADUATE RESEARCH PROJECT INSTITUTIONS, 1970-1981

Institutions	70-71	71-72	72-73	73-74	74-75	75-76	76-77	77-78	78-79	79-80	80-81	81-82
Brown	$ 2,600	$ 2,850	$ 3,050	$ 3,250	$ 3,500	$ 3,900	$ 4,300	$ 4,650	$ 5,050	$ 5,450	$ 6,140	$ 7,120
Bryn Mawr	1,800	2,100	2,250	2,500	2,750	3,050	3,450	3,850	4,150	4,650	5,350	6,250
Columbia	2,100	2,500	2,800	3,080	3,300	3,650	3,990	4,320	4,680	5,120	5,730	6,700
Cornell*	2,600	2,800	3,000	3,180	3,430	3,775	4,110	4,400	4,800	5,256	5,930	7,000
Duke	1,890	1,950	2,160	2,340	2,580	2,880	3,210	3,510	3,810	4,230	4,740	5,400
Harvard	2,600	2,800	3,000	3,200	3,400	3,740	4,100	4,450	4,850	5,300	6,000	6,930
Johns Hopkins	2,500	2,700	2,700	3,000	3,000	3,300	3,500	3,750	4,050	4,500	5,075	5,850
M. I. T.	2,500	2,650	2,900	3,100	3,350	3,700	4,000	4,350	4,700	5,300	6,200	7,400
Northwestern	1,890	2,295	2,595	2,850	3,150	3,510	3,930	4,290	4,290	5,190	5,940	6,885
Princeton	2,600	2,900	3,150	3,400	3,600	4,000	4,400	4,750	5,200	5,685	6,400	7,350
Smith	2,330	2,450	2,670	2,770	2,940	3,330	3,700	4,100	4,700	5,100	5,900	6,800
Stanford	2,400	2,610	2,850	3,135	3,375	3,810	4,275	4,695	5,130	5,595	6,285	7,140
U.C. Berkeley**	1,701	2,198	2,198	2,198	2,198	2,198	2,603	2,675	2,696	3,191	3,227	3,096
U. Chicago	2,475	2,625	2,775	3,000	3,210	3,420	3,630	3,930	4,305	4,740	5,355	6,300
U. Michigan***	1,940	2,240	2,360	2,840	2,840	3,008	3,300	3,552	3,800	4,088	4,616	5,452
U. North Carolina**	1,123	1,472	1,993	1,993	1,993	2,108	2,118	2,233	2,235	2,277	2,074	2,491
U. Pennsylvania	2,550	2,750	3,050	3,260	3,350	3,710	4,050	4,395	4,770	5,195	5,920	6,810
U. Rochester	2,600	2,925	2,925	3,275	3,275	3,525	3,775	4,050	4,500	4,750	5,300	5,975
Washington U.	2,200	2,450	2,650	2,900	3,100	3,350	3,650	3,950	4,300	4,750	5,350	6,250
Yale	2,550	2,900	3,200	3,400	3,650	4,050	4,400	4,750	5,150	5,600	6,200	6,960

* Endowed tuition rates listed only.

** Non-resident tuition and fees.

*** Non-resident tuition.

Source: COFHE Graduate Research Project (Tuition, Student Budgets and Residency Requirements, August 1981)

Fellowships, have declined to contribute anything at all toward institutional costs; they are "stipend only" awards.

In most cases, increased commitments from institutional endowments and general funds have been made to compensate in part for the loss of other revenues, but the gap between the costs of education and a combination of sources continues to widen. The result has been a rising net cost to students. There are thus only two ways in which the gap can be closed: (1) an increase in the contribution from student and family resources, and/or (2) increased borrowing.

Although politically popular, we believe that the first option is of limited value. Students generally possess very little in the way of financial resources themselves. In fact, many have borrowed significant sums of money to complete their undergraduate educations. The last two columns of Table 3 show the extent of educational borrowing for a random sample of 600 applicants to the Graduate School at Princeton this spring. These levels are consistent with the analysis distributed recently from a FIPSE study at the Educational Testing Service ("Talented and Needy Graduate and Professional Students;" see pages 15-21 of the Executive Summary).

Students have willingly availed themselves of "self-help" programs to offset part of their educational and living expenses. The College Work-Study (CW-S) program has been a timely and important federal response. Yet, while this program is very beneficial, the typical levels of per-student support it can provide do not even begin to meet costs at the leading graduate schools (refer to Table 1 tuition levels).

The data presented on Table 3 respond as well, we feel, to the sentiments

TABLE 3:

INFORMATION ON PARENTAL CONTRIBUTIONS FOR

SINGLE, U.S. APPLICANTS TO THE PRINCETON UNIVERSITY GRADUATE SCHOOL FOR THE 1982-83 ACADEMIC YEAR

	Age Category	Parental Income	Number in Sample	Average GAPSFAS Estimated Parental Contrib.	From Princeton's Statement of Financial Resources: Average Stated Parental Contrib.	as a % of GAPSFAS Estimate	% Saying No Parental Assistance	% Within $2000 of GAPSFAS	Average Educational Loans to Date: For all Those in Age Category	For Only Those Who Have Borrowed
Woodrow Wilson School, School of Architecture	< 24	≤ $30,000	92	$1,038	$ 807	78%	44%	84%	$3,621	$4,972
	< 24	> $30,000	150	$7,172	$1,733	24%	43%	31%	$4,154	$5,991
	≥ 24	≤ $30,000	127	$2,239	$ 565	25%	53%	78%	$3,017	$4,616
	≥ 24	> $30,000	135	$9,585	$ 671	7%	60%	18%	$3,024	$6,093
Natural Sciences or School of Engineering	< 24	≤ $30,000	33	$1,312	$ 832	63%	43%	76%	$4,822	$6,121
	< 24	> $30,000	38	$7,030	$1,282	18%	42%	19%	$2,695	$6,400
	≥ 24	≤ $30,000	12	$1,619	$ 0	0%	100%	75%	$2,640	$5,279
	≥ 18	> $30,000	13	$7,107	$ 663	9%	62%	8%	$4,281	$6,957

of many that parents can make up any shortfalls in the educational expenses of their children. These 600 applicants were grouped by age (to get at the notion of "independence"), parental income, and broad fields of study. First of all, 44 percent of the applicants come from homes where the total family income is less than $30,000, and applicants to Princeton may constitute a more affluent group than a random selection of applicants across the country. The average estimated parental contribution is $1700 for these 600 applicants (computed from Columns 3 and 4), using the Graduate and Professional Student Financial Aid Service (GAPSFAS) analysis (a computation from submitted data on an applicant's personal and family income and assets, number of siblings in college, age distribution of the parents, etc. of an expected contribution from the family).

First of all, one must compare $1,700 to the expected costs of education, which including living expenses will range anywhere from $5,000 to $13,000, depending on the tuition levels as given in Table 1. Most of these families are simply in no position to contribute significantly to four years of graduate study for their children. Secondly, and more importantly, one must compare the formal "norm" or calculated contribution with the likely assistance from families.

Applicants to Princeton were asked to fill out and submit a separate "Statement of Financial Resources." They list in each case the available financial assistance from all sources, including a line item for the family's contribution. Column 5 of Table 3 lists the average family contribution agreed upon by the parents and the applicant. A comparison of Column 4 with Column 5 is important and revealing. First of all, as the age of the

applicants rises, there is a pronounced implicit independence. Dollar commitments decline and the percent indicating "no parental assistance" (column 7) rises. Secondly, the dollar commitment does not rise significantly with family income. On both counts, it appears that in our society graduate education, unlike college and braces, is a private matter between the individual student and the graduate school. Contributions from the family are not going to be large, and they will be largely independent of any legal definition (as is now employed for certain federal programs) of "dependent" or "independent." For all age and income categories, the percentage of applicants indicating no aid whatsoever from their families exceeds 40 percent.

If parental assistance is not a realistic alternative for closing the financial gap, that leaves only one other avenue: increased graduate-student indebtedness. (There is perhaps one other avenue: part-time study coupled with full-time employment. We tend to dismiss it as a feasible arrangement because of the inherent defects: part-time employment does not generally provide sufficient income to attend many institutions, and full-time employment is, in most cases, incompatible with successful pursuit of an advanced degree.) In 1970-71, for example, Princeton graduate students borrowed a total of $70,000. In 1980-81 the same size student body borrowed $1,500,000. (The 1980-81 total averages about $3,000 per eligible borrower, a figure that corresponds quite closely to the difference or "gap" between the average financial aid award--national fellowship, teaching or research assistantship, or university fellowship--and the cost of education.) Much more will be said about the general experiences and concerns associated with graduate-

student indebtedness in Part Two below. Suffice it to say at this point that the continuation of current borrowing levels and trends makes all the more imperative our search for ways to finance graduate education.

It is worth noting at this point the differential financial impact of the trends and relationships outlined above by type of student and institution. The decline in national fellowship programs and inflationary costs have had more of a negative impact on the leading ten, twenty, and fifty institutions. The top ten graduate programs in each discipline attract probably two-thirds of "portable" fellowships, such as NSF or Danforth awards. The major research institutions receive a somewhat disproportionate share of sponsored research and institutional-based grants (NIH traineeships, area studies fellowships). These fifty or so institutions are also what constitute in a very real sense a national (and even international) resource or "market." The most talented applicants are simply drawn to the best programs, as they should be. The remaining graduate schools (250) tend to draw much more from in-state or perhaps regional feeder schools. Thus cutbacks in major programs have been felt disproportionately by a relatively small number of highly selective institutions and programs.

With this background, then, we return to our original two questions: the extent to which the financial context described above is a contributing factor in dissuading students from pursuing graduate studies and the extent to which it has had deleterious consequences for major fields of study and therefore for the national interest.

Earlier this spring COFHE institutions sponsored an undergraduate

survey that was distributed to all seniors at twenty-five schools. The machine-readable questionnaires (a copy is being submitted with this paper as a source document; the survey questions merit careful examination) are now being tabulated; results--including elaborate cross tabulations--will be available by early October. Responses should enable us to see the principal motivations influencing potential applicants in choosing among career alternatives. We should be able to determine the importance of financial issues, concerns about academic job markets, professional school programs, etc. in students' immediate and longer-run career choices. Aggregate educational indebtedness for these students will be available as well. One important cross-tab for the second question (quality) will be the desired career paths by academic record (as indicated by grade average and scholastic honors).

Many graduate institutions regularly survey admitted applicants each year to assess why particular offers of admission and aid are accepted or declined. Reasons given include faculty and academic program, the type and level of financial aid offered, and other factors (including geographical preferences, availability of housing, etc.). These institutions would, we are sure, be willing to share this information. As part of the COFHE project, 3000 applicants admitted to at least one of the twenty project institutions for the 1981-82 academic year were asked to complete a special questionnaire. 700 usable responses are now being analyzed by the Stanford group. These results and the individual institutional survey data should provide good information on the motivations and sensitivities of those who have chosen to apply to graduate school; the COFHE senior survey project will reveal the

same motivations, expectations, and sensitivities for a somewhat different population.

These two surveys are, we believe, perhaps the best sources of the motivational issues as they relate to financing graduate education. That they are both drawn from a special subset of the Ph.D.-granting institutions may be of some concern although these programs, as alluded to earlier, are disproportionately represented in most aspects of any national market.

Impressionistic evidence garnered each spring from admitted applicants and in conversations with enrolled students suggests that students are very worried about being able to finance their studies (but not sensitive to a swing of 10% one direction or the other after some minimally acceptable level of support is assured) and about their likely loan debt upon completion of the degree (especially in light of expected income). However, with the declines in other sources of support, one likely scenario is that graduate students and new applicants have had little choice but to use loan programs (mainly GSL) as the only way of supplementing institutional assistantships and fellowships, and many have done so (reluctantly, of course) rather than forgo graduate study entirely.

As for the quality or national-interest aspect, there are a number of sources of indices as well as a few caveats that must be acknowledged. The conventional wisdom points to declining quality in the applicant pool; off the record, departments will occasionally bemoan the lack of a core of exceptional young scholars, and it stretches one's credulity to think that the observed decrease in the number of applicants over the last decade has come disproportionately from the bottom of the pool. (A corroborative

piece of information is that, at least for major institutions represented in the COFHE Graduate Research Project, enrollments over the last decade have not declined at the same rate as the decline in applications. Hence a larger percentage of applicants is being admitted; the clear implication of this, even if the distribution of quality within a smaller pool remains constant, is that the absolute number of highly qualified people and the average quality of admitted applicants both fall when the size of the pool shrinks.)

The COFHE Senior Survey should be an important document in sorting career plans by some measure of quality. Also, individual departments at a sample of colleges should be able, without too much difficulty, to produce information on exactly which seniors are entering graduate programs. The Educational Testing Service can plot median GRE test scores over time (one would want to plot any trend there against median scores for the SAT, GMAT, LSAT, and the medical school exams, however; that indexing or control is crucial). According to David Breneman of Brookings, there is a proposal for a longer-run study from Rod Hartnett at ETS to do a more detailed analysis of GRE scores.

Princeton, Harvard, and Chicago have looked at post-baccalaureate plans of seniors elected to Phi Beta Kappa (one possible index of quality). Those data are freely available, and reveal the percentage distribution for Ph.D. programs, professional schools, work, etc. The PBK study and the COFHE Senior Survey provide only current information; GRE and professional school exam scores will provide a longitudinal view. (Princeton has looked at PBK people for both 1981 and 1976, however, and Chicago has figures for its PBK

groups in 1974 and 1981).

Three final observations or caveats are in order before moving on to a further examination of the trends and shortcomings in public and private sources of support.

First, the major institutions have been able in the past, one way or another, to find internal sources of support for their best applicants and students. NSF winners would have been supported, at least in the short-run, by some combination of teaching assistantships, university fellowships, and research appointment. Probably even the NSF alternates or "honorable mention" group would find at least subsistence support at a leading graduate program (though perhaps not the student's first or second choice).

What, then, is the concern if sufficient funds already exist to attract at least one excellent student to one excellent university and to develop that student into a promising scholar? The question is whether current or projected levels of financial assistance are adequate to create an environment in which the most promising students in sufficient numbers are encouraged to consider graduate study leading primarily toward the Ph.D., to meet the needs of students (and institutions) at the several stages of graduate study, and to accomplish the purposes of a broad range of institutions, whose approaches to graduate education differ, sometimes markedly. As mentioned earlier, research institutions are multi-dimensional; while the very top applicants could be supported, these enterprises would have to retrench, causing harm to facilities, undergraduate programs, and faculty quality. The long-run equilibrium would look radically different from what we now think of as graduate education. There is a need for some

"critical mass" or scale of operation if the enterprise is to be sustained.

The second observation is that we live in a world of uncertainty and imperfect information. In spite of the hard labors of faculty committees and administrators to evaluate applications and seek out and train the next generation of scholars, sometimes the most promising applicants turn out to be less committed and less good than someone further down on a departmental rank order list; admissions criteria in some fields are less than precise and they are imperfect indicators of eventual professional success (and also comparisons of rank order lists across institutions reveal substantial lack of uniformity in the rating of common applications). Thus one may need a group of ten entering students in English to have seven complete Ph.D. qualifying exams, five to finish the dissertation, and two--and not necessarily the two top ranked people four years earlier--to be the outstanding scholars. Thus the ability to support five at entrance is not sufficient to guarantee that two first-rate researchers will emerge from that process. This phenomenon is certainly not unique to academic settings; the same applies to athletics, top corporate executives, and members of Congress.

Finally, in addition to supplying a significant monetary incentive, fellowship programs, for example, also offer a psychological inducement--an ideal, a goal, a widening of one's perspective. The non-monetary benefits to the recipients and to the Nation from an NSF, Danforth, or Rhodes award far exceed the net monetary benefits (recognizing that for these people, alternative sources of support would almost certainly have been forthcoming). National academic competitions have this in common with national athletic competitions (Olympics, NCAA tournaments), beauty pageants, and spelling bees:

these programs not only bring out the best in each performer, they raise the average quality of the participants both by increasing the number of likely contestants and by causing each entrant to be better prepared and they also provide role models and intergenerational bonds. Each of these points is applicable to, and critical for, academic environments.

The existing evidence and research agenda described on the preceding pages draw from the undergraduate population--those who have recently applied to graduate school as well as those who have selected other alternatives--and from those who applied to graduate school a year ago. There are two other groups that, certainly over the longer run but perhaps even now, should be sampled: (1) those who actually entered Ph.D. programs and dropped out before completing their terminal degrees; and (2) the doctorate population. Both groups could shed light on the importance of finances in graduate school (and to what extent financial difficulties were a factor in forcing the first group to change career plans). Institutional enrollment books and alumni records could provide names and addresses for the first group; the NRC Survey of Earned Do torates, for the second. We know surprisingly little about the Ph.D. process, the financial pressures, dissatisfactions with the programs, and a variety of other considerations that will come to mind. We have failed to extract in most cases valuable information from those individuals who enroll in (and complete) advanced programs.

Part Two

The second research area for the Commission should be to:

INVESTIGATE EXISTING AND PROJECTED LEVELS OF GRADUATE STUDENT INDEBTEDNESS, EXPECTATIONS FOR BORROWING, AND IMPLICATIONS

Twenty years ago, borrowing to meet educational costs was virtually unknown among graduate students. Federally subsidized loans, of course, did not exist, but neither did the need for them. Even before the advent of major federal support for graduate study in the late 1950's, the cost to students for graduate education was sufficiently modest to enable them to work part-time, to avail themselves of institutional resources, and to borrow small amounts from parents and commercial sources in order to finance doctorate study.

Dramatic increases in tuition and even more dramatic increases in the cost of living, along with a steady diminution of all other forms of financial support (discussed in Parts One and Three) have made loans an essential component in the array of mechanisms for financial assistance. Graduate schools (and certainly professional schools), along with their students, have come to accept dependence on borrowing, if only out of necessity, and the impact of indebtedness on all of postbaccalaureate education is worthy of exploration; we urge special consideration of the effects of borrowing on graduate study leading to the Ph.D., especially in the humanities and social sciences. Such attention seems to us entirely consistent with the concerns, both implicit and explicit, expressed in the mandated study. With the relatively low salaries associated with academic employment, and the presumed need to

encourage the most able and talented to enter these professions, we think it appropriate to consider the question of indebtedness in this light.

As mentioned earlier, borrowing at an institution like Princeton has gone (with roughly the same enrollment over the period in question) from $70,000 in 1970-71 annually to $1.5 million a decade later. Table 4 provides a divisional breakdown at Princeton for the last six academic years. Both the average real dollar amount borrowed and the percent of students participating in federal loan programs has increased. It should be noted that the figures on Table 4 are annual totals and averages; cumulative graduate school indebtedness may thus be running as high as $8,000 to $12,000 for those who are borrowing. On top of this must be added perhaps another $4,000-$8,000 in undergraduate indebtedness to arrive at the typical educational indebtedness for a large part of the graduate student population at one fairly affluent graduate school. (Rose Hooper at the University of Michigan has compiled aggregate loan data for 15-20 schools for 1979-80 and 1980-81. This information, as part of the COFHE Project, is available to the Commission.)

The above paragraph does not constitute "hard" data on even one institution; nor can one necessarily extrapolate or generalize to the graduate population as a whole. And those who have pointed out that information on indebtedness is both lacking and critical are in the main correct. But there are reasonable ways to get part way down the road--from what we know now and from what we could learn with minimal effort in a few month's time. We urge the Commission to pursue these avenues.

First of all, the ETS/FIPSE "Talented and Needy" study (referenced earlier) is an excellent source document on undergraduate indebtedness by

TABLE 4

PRINCETON UNIVERSITY GRADUATE STUDENT BORROWING, 1975-76 to 1980-81

		1975-76	1976-77[1]	1977-78	1978-79	1979-80	1980-81
I.	Total Borrowing	$443,000	$558,000	$869,000	$1,001,000	$1,204,000	$1,494,000
	# Borrowers[2]	266	290	311	363	401	466
II.	$ Borrowed / Total U.S. Enroll.[3]						
	Humanities plus Social Sciences	$\frac{\$298,000}{526}=\$570$	$\frac{\$372,000}{472}=\$790$	$\frac{\$532,000}{514}=\$1035$	$\frac{\$560,000}{491}=\$1140$	$\frac{\$669,000}{464}=1440$	$\frac{\$785,000}{434}=\$1810$
	Natural Sciences plus Engineering	$\frac{40,000}{438}=\$90$	$\frac{48,000}{467}=\$100$	$\frac{122,000}{483}=\$250$	$\frac{149,000}{475}=\$310$	$\frac{155,000}{496}=\$310$	$\frac{338,000}{496}=\$680$
	Architecture plus The Woodrow Wilson School of Public and Int'l. Affairs	$\frac{105,000}{153}=\$690$	$\frac{139,000}{152}=\$920$	$\frac{215,000}{157}=\$1370$	$\frac{292,000}{156}=\$1870$	$\frac{290,000}{143}=\$2030$	$\frac{372,000}{149}=\$2500$
III.	$ Borrowed/Number of Actual Borrowers						
	Humanities plus Social Sciences	$\frac{\$298,000}{173}=\$1720$	$\frac{\$372,000}{190}=\$1960$	$\frac{\$532,000}{192}=\$2770$	$\frac{\$560,000}{203}=\$2760$	$\frac{\$669,000}{224}=\$2990$	$\frac{\$785,000}{236}=\$3330$
	Natural Sciences plus Engineering	$\frac{40,000}{27}=\$1480$	$\frac{48,000}{32}=\$1500$	$\frac{122,000}{52}=\$2350$	$\frac{149,000}{73}=\$2040$	$\frac{155,000}{98}=\$1580$	$\frac{338,000}{134}=\$2520$
	Architecture plus The Woodrow Wilson School of Public and Int'l. Affairs	$\frac{105,000}{66}=\$1590$	$\frac{139,000}{68}=\$2040$	$\frac{215,000}{67}=\$3210$	$\frac{292,000}{87}=\$3360$	$\frac{290,000}{79}=\$3670$	$\frac{372,000}{96}=\$3880$
IV.	Percent of U.S. Students Borrowing						
	Hum. + Soc. Sci.	33%	40%	37%	41%	48%	54%
	Sci. + Engineering	6	7	11	15	20	27
	Arch. + WWS	43	44	42	56	54	63

[1]Loan ceiling raised from $2,500 to $5,000 after 1976-77 academic year.

[2]Total Graduate School enrollment approximately constant over this period.

[3]Foreign students are not eligible to borrow.

One complementary and important loan problem that has emerged from campus surveys at Stanford, Princeton, and the COFHE Project is the seeming lack of correspondence between student expectations and reality. Time and time again survey respondents indicate expected indebtedness levels that are far below (by at least a factor or two) what we know to be actual levels of their peers two or three years into graduate programs. Applicants just do not realize how much borrowing they will have to do. (They also greatly overestimate the amount of parental assistance; thus the "agreed to" levels in Column 5 of Table 3 are probably a substantial overestimate of the actual annual family contribution. Also, borrowing increases, though probably at a declining rate, and parental assistance decreases, by year of study.) An extremely fruitful, but longer-range, research endeavor would be to get at the whole matter of expectations: for financial issues as well as the Ph.D. process and employment experiences.

With shortfalls in traditional sources of support, graduate students have become more and more dependent on loan programs to finance their studies. The mushrooming exposure of funds under the Guaranteed Student Loan Program (GSL) has created alarm from many quarters, and has been an important element behind many legislative initiatives in the last two years--both to control costs and to prevent abuse. The second concern is the easier of the two: most graduate schools would admit openly that some abuse is certainly present. However, the clear consensus of these officials is that graduate students in the arts and sciences are overwhelmingly scrupulous in their GSL participation--and graduate loan officials monitor graduate-student borrowing very closely both to prevent abuse and in a counseling role to prevent students from incurring

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serious financial problems during and after graduate school.

The first point (controlling costs) is very complex, and the right answers, if there are any outcomes recognizable as such, will depend on fairly detailed evidence, preferences of those making educational policy, and solid modeling. Some policy considerations are examined more fully in Part Five, but we will introduce some critical factors now.

Universities and federal agencies must understand, articulate, and attempt to alleviate the problem of excessive debt burdens. A literature on manageable debt levels exists. We are familiar with, and have included as documents, three research pieces on loan issues: (1) "Financing Student Loans" by Arthur Hauptman of the College Board, (2) "A Model for Calculating Manageable Debt Principals" by Breyer and Popik of Northwestern (and a review by Marion Hogenboom of that institution), and (3) a study, now several years old, by Dwight Horch of ETS on manageable debt limits. Given what we know about academic salaries, the above studies and less-formal assessments from local experiences at a number of universities allow us to infer how close we are coming in some cases to unreasonably high debt levels. Higher default rates and/or long years of confinement to rather meagre economic circumstances await far too many of today's (and yesterday's) doctorate population.

Many plans to reduce or contain the eventual payback have been offered, e.g.: the continued (or at least through fiscal year 1981) in-school interest subsidy; income-contingent repayment schemes; forgiveness clauses for meeting certain employment criteria (teaching at a university, for example, as with the old NDFL program), limiting the number of years of eligibility

under GSL (to eliminate nth-year students or to give each student only a set period to prove his or her "star" quality and thus be supported from other university resources), deferred forgiveness pools for those who actually complete a Ph.D. (perhaps in selected fields), or "block" loan grants to institutions based on some index of merit and need.

Most of the above schemes speak more to the issue of managing debt limits than to controlling costs (understandably perhaps because any attempts to control costs entail unpleasant alternatives and confrontations that will leave sizable populations in the educational community dissatisfied). In one way or another they also continue a feature inherent in most of the federal loan programs over the last twenty years: an explicit or implicit subsidy. Ultimately, to control costs, one must come to grips with either the subsidy issue or the eligibility criteria.

On the one hand, if the purpose of a loan program is to provide guarantees--or surrogate collateral--for students who are, for all practical purposes, entering graduate school without any visible means of support, then the matter is purely one of access or availability. There is no need for any subsidy. Market rates of interest, adjusted for risk, will suffice. But this line of argument is going to be quickly and vituperatively attacked by the forces arguing that, given starting salaries for assistant professors, the humanists simply can't afford to be party to any such free enterprise notions. And thus the debate (or lack thereof) is circular because manageable debt burdens require a subsidy and so forth. Nevertheless, we submit that a hard look should be given to uncoupling the <u>access</u> and <u>subsidy</u> components of federal loan programs; the latter need not be--and should not be--given

carte blanche to all who want it. As long as there is a degree of subsidy involved, it will be necessary to make distinctions among recipients as a way of controlling costs. If access is an objective of these loan programs, then we think it necessary to reduce or eliminate the subsidy.

The remaining problem is the eligibility criteria for borrowers as more stringent need tests are being introduced into the GSL program. By federal criteria, a large majority of first- and second-year graduate students are legally dependent (upon parental income and assets), having been supported through the B.A. or B.S. degree to some extent from family resources. "Dependent" status is clear, but probably very unrealistic given evidence presented on likely family contributions in Table 3. A strong case can be made for ignoring the current legal definitions of dependence and independence under GSL. "Independence" and "dependence" are more of a continuum and a state of mind rather than discrete categories or legal status.

The plain fact of the matter is that many parents consider four years of (often expensive) undergraduate training as their final commitment of earnings toward educational expenses of their offspring. Though they will have paid perhaps $1,000 or more to their son or daughter in the senior year of college, they have little inclination to continue that practice during the child's graduate study in business, law, or medicine, and they are even less inclined to do so, our experience tells us, in art history or even physics. But the fact that the parents made a contribution toward a college senior's educational expenses may render that student ineligible for the GSL program until h or her third year in graduate school. Or, to take a complementary program, if the parents do try to help the student with graduate school expenses, their

generosity can again prevent the student from having access to guaranteed loans. We regard these constraints as both unwise and inimical. Parental assistance should be encouraged but not required, and its presence should then not be used to exclude participation in "self-help" (Loan and College Work-Study) programs.

Part Three

In almost every sense, Section (I) is both the heart of the mandated study and by far the most difficult to address. To do so adequately would require a knowledge of the entire configuration and evolution of graduate financial aid resources from the post-World War II period to the present, an informed sense of how--and why-- the absolute funding and the relative distribution have changed, and a clear understanding of the structure and financing of graduate education in this country. That level of comprehension is beyond our grasp, and even if we felt up to the task, the result would have to be, at the very minimum, a 500-page treatise deliverable only after a year's worth of research and writing.

With the above caveats up front, we nevertheless have tried to detail what we do know, why we know it, and what the Commission can do in the short run to

ANALYZE TRENDS AND SHORTCOMINGS IN THE
SOURCES OF SUPPORT AVAILABLE TO STUDENTS
FOR THE FINANCING OF GRADUATE EDUCATION.

We have tried to compare resources by type and level by discipline with respect to the following sources:

(i) the federal government

(ii) state and local governments

(iii) foundations, corporations, and other private entities

(iv) institutions of higher education

(v) students and their families

Some of the material that follows may (1) be intuitively obvious to some readers and (2) contain some overlap with the Butler-Nalin/Stanford descriptive paper. Yet we feel that we may err on the other side by bypassing the basic framework. We refer the reader to that companion paper (Butler-Nalin) for a fuller discussion of the array and level of aid programs and as an excellent complement to the coverage and analysis that follows here.

Graduate financial assistance can--and certainly does--take many forms. Fellowships are non-service aid that are awarded directly to students in open or restricted competition or are distributed by or through universities; National Science Foundation Fellowships, Whiting Fellowships in the Humanities, Public Service (Title IX), and university fellowships are four such models. The selection criterion is overwhelmingly, but not always, by merit. Federal and state governments, foundations, corporations, and universities are all sources of fellowship aid. Teaching Assistantships are generally administered and funded by the individual universities and require certain duties (lectures, language drills, laboratory sessions, and/or grading). Research Assistantships are a component of a faculty member's grant or contract to carry out a specific research project; most RA appointments are federally funded. In between fellowships and research assistantships are traineeships, usually federally sponsored; some specific course of study is generally required and traineeships (such as NIH or area studies) are targeted to fields of perceived importance. Work-Study is a federal self-help program of recent vintage that has allowed students to earn part of the educational expenses while engaging in service activity directly related to their areas of interest and ability. Loans complete the set of current--and significant aid programs. Most graduate

student loans are from the federal Guaranteed Student Loan Program. Provisions under the G.I. Bill have provided tremendous educational opportunities for countless students over the last thirty years; the impact currently is, for obvious reasons, slight.

The distribution of assistance by support category for individual institutions should be available to the Commission. Table 5 depicts the primary sources, levels, and distribution by field for the Princeton Graduate School for the 1981-82 academic year (in FTE--full-time-equivalent units; one student, for example, might be appointed as both a teaching assistant and a research assistant, each on a half-time basis). The Annual Report of the Survey of Earned Doctorates (referenced in Part One and submitted as a source document) contains detailed information on support categories by discipline, sex, socioeconomic group, nationality, and--through manipulation of the raw data--by institution and/or institutional groupings. (This source can be used to get both cross-section and time-series data.)

Rose Hooper, at the University of Michigan, has compiled information for the last two years (as part of the COFHE project) on sources of support for seventeen schools. The results for 1979-80 are displayed by dollar volume and percent of total educational costs in Figures 2 and 3, respectively. There are certain definitional intricacies, for research assistantships and fellowships especially, that Ms. Hooper should--and can--explain.

Table 5.

Financial Support for Princeton University Graduate Students, Academic Year 1981-82

17% served as teaching assistants; remuneration is full tuition ($7350) plus an average stipend of $4750. One-third of Princeton's TAs are in the humanities and social sciences; two-thirds, in the natural sciences and engineering. Twenty hours per week is considered a full-time work load.

20% worked on research contracts. Part of the tuition ($3280) is paid by the University; the remainder ($4070) plus a stipend of about $4400 is paid by the sponsoring agency. Most of research support comes from the federal government and goes almost exclusively to students in natural science and engineering departments.

21% received support from non-University fellowships or traineeships (such as National Science Foundation, Hertz Foundation, Bell Labs, SSHRC of Canada, Bank of Japan, Whiting Foundation, etc.). These fellowships are distributed across all divisions--though individual programs such as NSF or Whiting are restricted to certain fields of study--but concentrated in science and engineering departments; the typical award provided for tuition and a stipend of $4000-$6000.

34% were on University fellowships, funded from Graduate School or department endowment income and University general funds. Awards ranged from one-half tuition ($3675) to full tuition plus a $4000 stipend; the average fellowship was tuition plus approximately a $2000 stipend. Criteria are merit and need. University fellowships are heavily concentrated in the humanities, social sciences, School of Architecture, and the Woodrow Wilson School.

8% financed their studies during 1981-82 from personal and family resources. Most of these students were in the humanities or social sciences divisions.

NOTE: (a) for 1981-82 the average cost of living (above tuition and fees) for a single student was $500 per month; for a married student, $850.

(b) in addition to support categories above, about 450 students participated in loan programs, borrowing a total of $1.5 million.

GRADUATE STUDENT SUPPORT, 1979-80

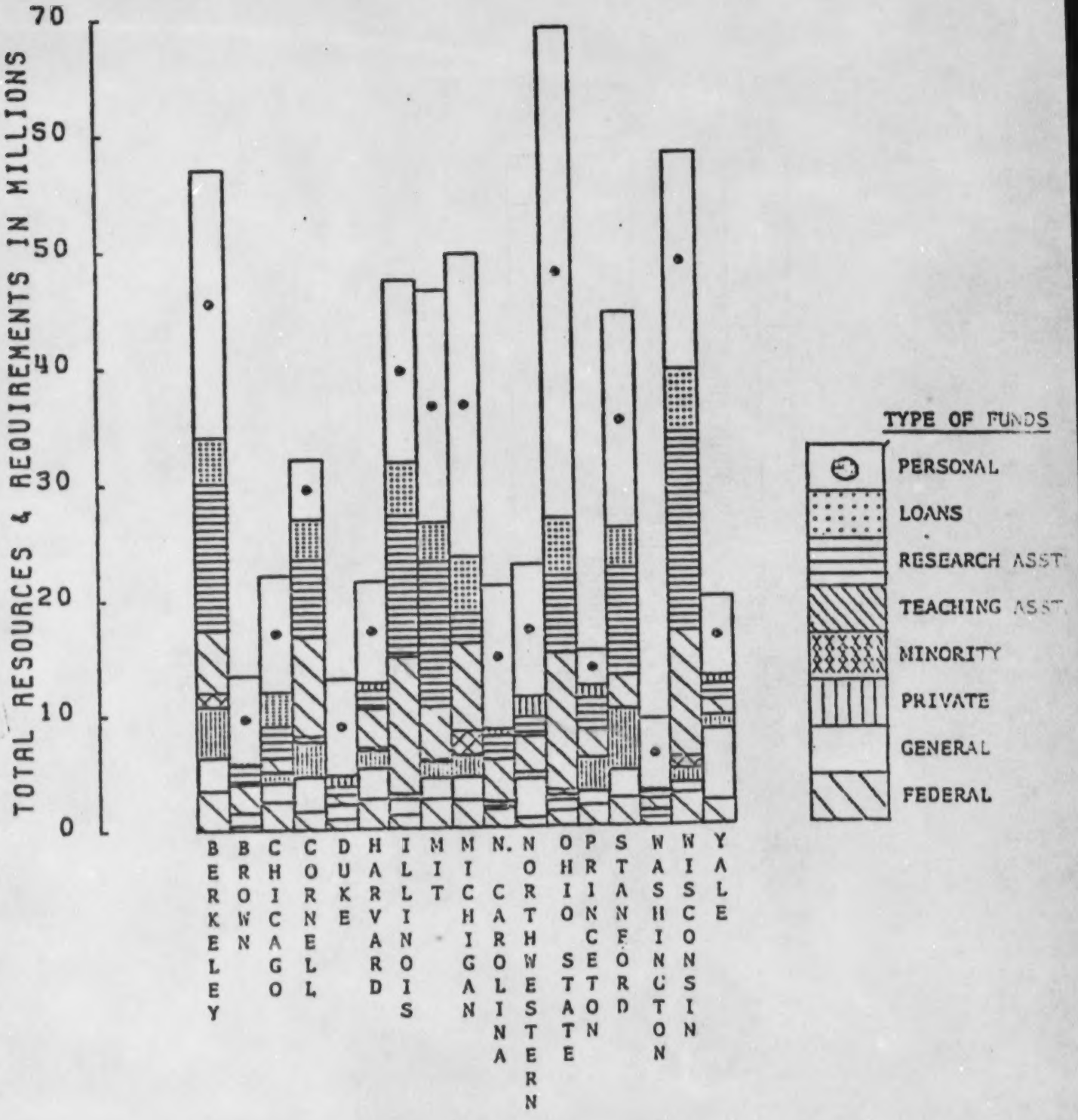
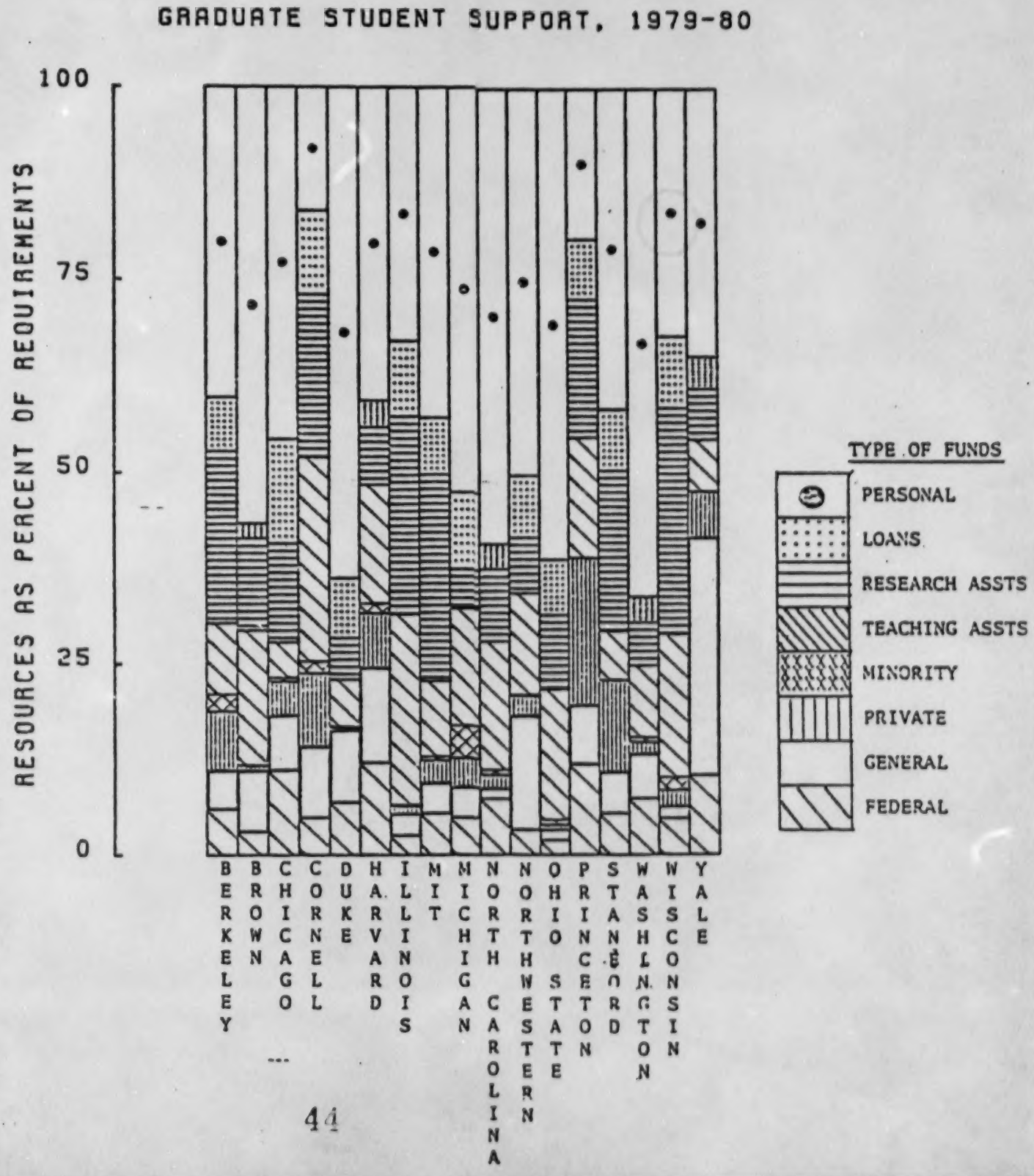


Figure 3.


GRADUATE STUDENT SUPPORT, 1979-80
RESOURCES AS PERCENT OF REQUIREMENTS
100
75
50
25
0
BERKELEY
BROWN
CHICAGO
CORNELL
DUKE
HARVARD
ILLINOIS
MIT
MICHIGAN
NORTH CAROLINA
NORTHWESTERN
OHIO STATE
PRINCETON
STANFORD
WASHINGTON
WISCONSIN
YALE
TYPE OF FUNDS
PERSONAL
LOANS
RESEARCH ASSTS
TEACHING ASSTS
MINORITY
PRIVATE
GENERAL
FEDERAL

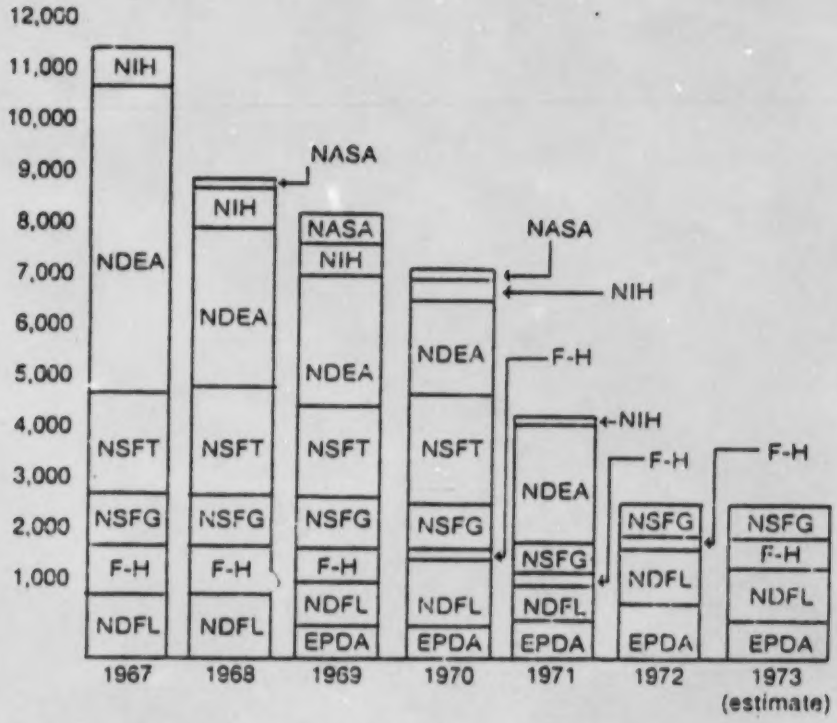
HEGIS and NSF survey data are additional sources of good, though somewhat limited, aggregate and institutional financial information.

Individual federal agencies (NSF, NIH, etc.), foundations (such as Danforth, Whiting), and corporations should be able to furnish the Commission with both current and past funding levels for fellowships. We alluded in Part One to the trend in certain federal fellowship programs. NSF awards, for example, totaled 1,941 new awards in 1970-71; a decade later, only 500. Federal fellowships grew steadily in the decade following Sputnik, but began to fall off sharply after 1968. According to a study by the National Board of Graduate Education, the number of federal fellowships and traineeships fell from over 50,000 in 1968 to under 7,000 by 1974. Figure 4 shows the levels of various federally-sponsored programs for first-year graduate students from 1967-73. Updating of this chart, with provisions for program changes and additions from 1973-82, should be possible.

A brief overview of support levels by category and academic discipline are contained in Table 5. In the humanities and social sciences the primary sources of support tend to be university fellowships and teaching assistantships, coupled with extensive borrowing, part-time employment (including work-study), and personal or family resources; university fellowships tend to provide, on average, far less than the total cost of education for a student. (There is also a high degree of inequality in these disciplines: some students are supported at reasonable levels while most face day-to-day financial pressures. In the sciences and engineering, by contrast, the variation in support across students is considerably less.) Science and engineering students rely to a large extent on research contracts, teaching

Figure 4.

Fellowships for Beginning Graduate Students 1967-1973



NASA — National Aeronautics and Space Administration
NIH — National Institutes of Health
NDEA — National Defense Education Act
NSFT — National Science Foundation Traineeships
NSFG — National Science Foundation Graduate Fellowships
F-H — Fulbright-Hays
NDFL — National Defense Foreign Language Fellowships
EPDA — Education Professions Development Act

Source: Woodrow Wilson National Fellowship Foundation Report for 1971-72, page 66.

assistantships, and a combination of public and private fellowship programs.

Foundation support has been, in the aggregate (though individual programs impose restrictions), distributed across many disciplines; fellowships have been the typical form. The Corporate sector sponsors research and offers fellowships, though both are heavily geared to specific engineering and applied science areas. Educational institutions provide fellowships and teaching assistantships, the former concentrated in the humanities and social sciences, the latter more in the sciences. Federal support runs the gamut: research assistants, fellowships, traineeships, work-study, and loans; while loans and work-study are not necessarily discipline-specific, other federal programs benefit disproportionately science and engineering fields,

Historically, and at present, only a small number of private foundations have participated in financing graduate education. The Ford, Woodrow Wilson, and Danforth programs, all major commitments in the last twenty years, have all terminated. The Whiting Foundation continues to support dissertation research in the humanities at seven institutions (about 600 fellows per year total); the Charlotte Newcombe Foundation now offers 45 dissertation grants annually across a number of fields.

The Danforth Foundation has moved to the support of minority students through institutional grants to ten universities; Lilly Foundation funds sustain a strong minority effort in the midwest (at eleven schools--the "Big Ten" plus Chicago--participating in the C.I.C. Minority Program; Danforth and C.I.C. representatives should be able to comment on their respective efforts).

Beginning in 1983, the Mellon Foundation will underwrite the costs of

a major fellowship effort in the humanities. The program, administered by the Woodrow Wilson Foundation, will support 100 fellows annually (each for a two-year period, at which point they will presumably be supported internally by the institutions which they attend) for the next several years. The main motivations or stimuli for this commitment come from William Bowen's annual report, (referenced earlier and submitted) and Part B of Title IX, legislated but not funded, in the 1980 amendments to the Higher Education Act.

Remaining foundation support is both comparatively small in volume and quite limiting in terms of eligibility. Most major research universities have a foundation relations officer within their Development Office. This should be an obvious and efficient way for the Commission to track foundation support--as well as to locate key foundation publications and national organizations.

Corporate support of graduate education, until recently, has been very limited--in both level and scope. Major corporate (or corporate foundation) fellowship efforts (Exxon, Arco, Gulf, Kodak, Hertz) have been initiated. While very important and welcome, these programs tend to be highly concentrated in engineering and applied science fields (with oil/energy and computer technology being the two most represented areas). Corporate-sponsored research is growing, but it is also highly concentrated (computer science, bio-engineering, for example). There are few if any significant corporate efforts in the humanities or social sciences.

Historically, the purview of local government support of education has been limited to the provision of elementary and secondary schools. These governmental units have not, for all practical purposes, been directly

involved in financial support of graduate students (there are minor indirect effects that include community housing, employment, and taxing policies). State governments have made significant contributions to graduate education and to higher education in general. State taxes underwrite educational costs, thereby keeping the level of tuition (as illustrated on Table 1) low--and far below those of private institutions. There are positive effects in the aggregate from such policies and distributional effects because the direct costs for students of public institutions are, in many cases, a small fraction of private university tuition charges. Secondly, state legislatures authorize instructional budgets for their university system, which in turn influences the availability of teaching assistantships, a principal mechanism for supporting graduate students at state universities.

State governments have also been active in assisting, through the banking industry and offices of higher education, the implementation of the Guaranteed Student Loan program. A few have even authorized participation in the federally-sponsored ALAS/PLUS loan program and/or helped support bond issues to establish statewide or institutional loan funds. (These last two efforts, while laudatory, pale in comparison with the size and advantages of straight participation in GSL circa 1980.)

Some individual states have limited fellowship programs that assist state residents attending state graduate schools; New York and New Jersey are two such examples. (In New Jersey the Garden State Fellowship Program awards twenty-five fellowships annually--at $4,000 per award for up to four years--to promising young scholars.) These programs are very worthwhile, though are quantitatively small and do limit mobility by specifying that

recipients attend particular institutions (i.e., within the state).

The Commission should contact higher education representatives in selected states (and certainly those with large populations) for further information on all aspects of state support of graduate education. It almost goes without saying that for the last few years, many state legislatures, in light of projected budget deficits, worsening economic conditions, and mounting pressures for spending from other interest groups, have demanded cutbacks in university budgets (see almost any issue of The Chronicle of Higher Education; the July 14, 1982 issue contains, on page 10, reference to and a summary of an annual report on the bleak outlook for state revenues in general). For the 1980's it appears unlikely that individual states will, in the aggregate, be able to maintain their current level of commitment to graduate education, let alone compensate in any way for any further cuts at the national level. And for the most part, the commitment of state governments on higher education has geared toward faculty members, facilities, and undergraduates.

As noted earlier, universities have responded to some extent--and very generously, given pressures from state legislatures, inflation, energy costs, and endowment earnings--to reductions in public and private support in the 1970's. (Princeton, for example, increased its general funds commitment for graduate student aid from $2.5 million in 1970-81 to $6.7 million for 1980-81, and has nearly doubled the number of students supported on University fellowships, though at stipend levels that are, in real terms, roughly half the level a decade ago; increased tuition charges and having to spread scarce funds over more people have limited the stipends.)

Universities, both public and private, in an attempt to either shore up or to establish endowments, have turned to capital campaigns and major fund-raising endeavors in the last decade. Yet the spendable revenues from even the more successful of these efforts is far less than the losses sustained from reductions in federal research and student-aid support. And although there is some fungibility of resources within institutions, graduate student support has not been a line item for university presidents and development staff to sell to prospective donors--either alumni, corporations, or foundations (in large part because of the myths surrounding graduate education and the presence of the "spillover" effects that are simply not capturable on anything but a national scale).

Many institutions, at both the graduate and undergraduate level, have absorbed--and spent generously for--student aid. At Princeton, for example, as Table 5 shows, fully 60 percent of graduate students are supported from University funds or student/parental resources (teaching assistantships, University fellowships, and people who are self- or family-supported). Another factor not readily quantifiable is the concern that individual faculty members have for the material plight of the students who are working/studying with them. There are shared values and shared anxieties present; the continued downward pressure on federally sponsored research exposes faculty members and students to harsh economic realities in the sciences, and has revealed just how much professors care about people they regard almost as junior colleagues. Institutions and individual faculty members have responded in all possible ways to maintain the enterprise in spite of severe--and continuing--financial exigencies; but as of 1982, they have probably reached

a point beyond which they cannot realistically go.

The analysis, evidence, and sources contained in Parts One and Two of this paper offer a good look at financial support emanating from individual graduate students and their families. These direct and indirect (through incurring debt) personal financial commitments have grown manyfold since the late 1960's. While currently quite sizable, evidence suggests strongly that both parental contributions and student borrowing may have reached some reasonable upper bound (given income levels, societal notions of family responsibilities, and manageable debt burdens).

As should be obvious from Parts One, Two, and prior discussion in this section, federal sources of graduate aid are a maze of programs, some of them closed systems, designed to serve special purposes and to support selected disciplines, and bearing little or no relation to each other; others have been grouped together under the Higher Education Act, presumably bearing some relationship to each other, their proportions governed by political views and special-interest pressure.

The main federal efforts fall into three categories: (1) fellowships and traineeships, (2) self-help programs (loans and work-study), and (3) sponsored research. Declines in (1) have already been noted and suggestions for updating given. (The one exception is for the program of portable fellowships legislated in 1980 as Part B of Title IX; more will be said about this in Part Five of the paper.) We have not as yet made much of the distinction between "portable" and "institutional" fellowships (or non-service aid grants in general). It is, however, an important point--and a source of controversy--that can probably best be dealt with in Part Five along with other policy recommendations. Suffice it to say at this point, both authors

agree that given both the current aggregate level and distribution (by type of award and field of study) of federal commitments in these areas, public fellowship support is below a minimum necessary to satisfy the national interest criterion.

The growth of the "second" category, principally loan programs, can--and should be--documented; the mandated study under Section 8 would appear to demand it anyway. We feel strongly that the recent attacks on GSL--in terms of removing most of the subsidy elements and, more importantly, the proposed elimination of graduate students from the program altogether--represent the most serious threat to the survival of graduate education. The basic program, and its guarantee of access, is absolutely critical. However, we both feel that changes should be made to the GSL program in order to control costs and to address the fundamental purposes more directly. We have chosen to hold any further comments on loan and work-study programs until Part Five.

The third general category of direct federal involvement is that of sponsored research in general, through which vital research is carried out, university facilities are maintained, and graduate students are supported as research assistants to regular faculty. We feel that such support is both in the national interest and absolutely essential to the health of many aspects of higher education. In addition, the basic principles of peer review, reporting, and targeting that are inherent in research proposals are--and should be--applicable to other possible federal support mechanisms as well. We will return in Part Five to offer specific recommendations on this point.

As perhaps a conclusion for this section, it is worthwhile to point out

that the several avenues by which graduate students finance their studies--including public and private sources, institutional and personal funds, and programs running from fellowships to assistantships to loans and self-help--should be maintained and encouraged. Each entity works, when the entire system is running smoothly, in concert with the other elements. The federal government, because of inherent "spillover" effects and its comparative advantage in assuring access, should take the lead in ensuring that adequate resources are being allocated in higher education. It should also provide an environment that encourages opportunity and diversity, and one that is conducive to the private support of education. In addition to an examination of the level and distribution of funding, the Commission should inquire as to how well the federal government has fulfilled, with its spending and policies, its more general supportive and leadership roles.

Part Four

The Commission has been asked to give special consideration to:

THE FINANCIAL AND EDUCATIONAL NEEDS OF PERSONS

FROM DISADVANTAGED BACKGROUNDS, and

to assess the needs of such persons from the perspective of enhancing (1) their participation in graduate and professional education, and (2) their potential for employment in occupational areas where they are under-represented (not necessarily in occupations, as judged by strict economic and manpower considerations, deemed to be in the national interest).

The participation of persons from disadvantaged backgrounds in graduate and professional education is a vexed issue. Simply defining "disadvantaged" backgrounds, opens up a hornet's nest. Does the category include women? Does it refer generally to the economically disadvantaged, to the socially disadvantaged according to some more or less acceptable definition? Confounding all forms of postbaccalaureate education only further complicates the matter. Others can and should address the question with regard to professional education in its several major forms, and with regard to the involvement of women in the sciences and engineering, which represents a similar but special case.

We are inclined to understand "disadvantaged backgrounds" as a well-intended euphemism for what are traditionally understood to be the two largest minority groups -- Blacks and Hispanics (mainly Chicanos and Puerto Ricans), although the new wave of Asian immigrants may soon require increased attention, and American Indians continue to require special consideration--and will confine ourselves to their presence in doctoral programs in the arts and sciences, which include engineering.

Much data, although the definition of academic fields tends to be vague, indicate that the participation of these minorities in graduate education is skewed by discipline. These data, and our own knowledge and that of our colleagues at major universities throughout the Nation, confirm the absence of these minority groups in the sciences and engineering, their overrepresentation in descriptive social sciences (in the main, history, political science, and psychology), their severe underrepresentation in the humanities, and their disproportionate presence in the field of education.

We can adduce a host of reasons and speculations about the causes for these phenomena, most of which tend to generate more heat than light. For the purposes of this study, we think it is sufficient to note that the applicant pool is the limiting factor, with financial assistance only of secondary importance. (We must leave it to others to consider the causes of what may be poor preparation at earlier levels of education for "hard" disciplines, resulting in the attraction of "soft" fields, although the humanities in general--"soft" at least in the matter of quantitative skills--represent an exception to which we will return; a complementary factor may well be the perceived "relevance" and/or the cultural content of some disciplines compared to others.) According to conventional wisdom, and inferences that can be drawn from data developed by Astin and others (Minority Americans in Higher Education), the better-trained minority students in the sciences opt for medical school, while those in the social sciences and the liberal arts generally opt for law or business school. At the risk of being invidious, we surmise that the least-well trained opt for education and other "soft" professional fields (as seems to be true for non-minorities as well).

Financial assistance alone is not the answer. NSF and NIH have established programs directed toward minority students in the natural and, to some extent, the behavioral sciences. GPOP, in the last award period, provided about 37% of its fellowships to the physical and life sciences and 20% to engineering (and many of the remaining ones to other professional fields, mainly law). The simple fact of the matter is that most major universities could furnish sufficient financial assistance, with only a little outside help, to support qualified minority students in many fields, if only greater numbers of these students chose to pursue the Ph.D. The major exception is in the humanities and the more rigorous social sciences where increased funding, together with more sensitive recognition of talent and advice, may be necessary to increase the representation of minority students in these fields, at a level of excellence that will lead to faculty appointments in significant numbers at colleges and universities where these disciplines are pursued with distinction.

It seems to us that all forms of postbaccalaureate study, including professional education, will fail in their endeavor to increase minority participation if the liberal arts, by which we mean humane studies, at the undergraduate level are taught almost exclusively by faculty whose values are not informed by a first-hand experience of minority cultures. The sensibility for making decisions about future educational and occupational goals may be formed to a large extent in the home, and among friends and neighbors, but the experience of undergraduates in courses devoted to philosophical and literary inquiry, to the history of art, and to the

culture and history of peoples and their institutions, exerts an important influence.

Without the presence of Black and Hispanic faculty, these courses cannot but fail to set a tone that strikes a respondent chord in the minds and hearts of young minority students. The result may be a shying away--"distrustful, wary, cautious," our dictionary says in one of its meanings--from those scholarly fields that still continue to attract proportionally large numbers of majority students, in spite of dubious financial rewards. Instead, the objective for minority students becomes vocational training, socially "relevant" educational pursuits outside of the scholarly mainstream, and the field of education itself, often a poor surrogate for the basic forms of intellectual endeavor. The promise of full participation in American life is compromised by anything less than proportional representation by minorities on those faculties which constitute the excellence of colleges and universities.

One means of increasing the participation of minorities in humanistic studies is an unabashed enticement away from fields traditionally considered to provide obvious employment opportunities and upward mobility. The argument for providing fellowships (in general) for study in the humanities and social sciences is often based on the need to remove financial barriers, but in fact a fundamental purpose, as mentioned in Part One, is to signal the value that the Nation as a whole places on such pursuits. It is fair to suggest that students may be as much dissuaded from undertaking certain forms of graduate study by a lack of public concern for their importance as by financial considerations. In the case of minority groups, the virtues of economic and presumed social improvement may have been so overly stressed--by

minorities themselves and by all--as to require a countervailing influence.

As a first step, we suggest a reconsideration of the stated purposes of GPOP, under Title IX of the HEA, and a review of its success to date, measured against the standard of excellence. Some think (see Robert Rosenzweigs' presentation prepared for the AAU) that more attention should be paid (in the award of these grants to institutions) to the quality of programs and less to presumed employment opportunities and the ability to deliver an environment of support--anything less than an elaborate apparatus, with a cadre of special counsellors and tutors, is often interpreted as "benign neglect."

Employment opportunities, of course, are precisely to the point in these fields that trouble us: the humanities and the more quantitative social sciences. Few observers would suggest that the present market for academic employment in these areas is encouraging, although all observers would distinguish between the general state of the market and the availability of opportunities for the better-qualified new Ph.D.

In the matter of minorities, we think the case is again different. Although the experience of the Ford Foundation with graduate fellowships awarded between 1960 and 1976 to minority students for the support of doctoral study may temper our optimism (we understand that HERI conducted a "natural experiment" to test the efficacy of the program--see the Final Report of the Commission on the Higher Education of Minorities), we continue to believe that minority Ph.D.'s have a distinct advantage. Most Deans, Provosts, and Vice-Presidents can count on one hand, many with their hands in their pockets, the number of Blacks, Puerto Ricans, and Chicanos on

their faculties, and insist that they would leap at the chance to appoint such persons when they can be found. Ironically, universities have little trouble meeting their affirmative action goals in these disciplines because the national pools against which they measure their success contain so many empty sets.

Two forms of Federal grant assistance for minority Ph.D. candidates are required (or perhaps only one, if the model of the Mellon Fellows program were to be adopted; see Part Three): (1) "portable" fellowships that have the virtues we described earlier in Part One of this paper and return to in Part Five (these might be a percentage of a single program, such as the existing but unfunded "merit" program under Title IX, or a discrete program like Danforth's modest effort); (2) "institutionally-based" fellowships that serve the purposes we describe in Part Five of this paper. (These might also be a percentage of a single program, or a separate program, although we are inclined toward a single program with an "affirmative action" component, which declares that, up to a given percentage, where two equally qualified candidates are concerned, preference must be given to the one with the greater claim on our attention.)

In the matter of the minority baccalaureate pool, Donald R. Deskins of the University of Michigan has recently completed some analyses of BA/BS degree production. Although we have seen only his preliminary report--the final one exists only in manuscript awaiting a publisher--we understand from him that his data disprove some of the myths about the unavailability of minority baccalaureates. He undertook his study to aid in improving and developing recruitment strategies. Whether it will suggest ways to alter

the skewing by discipline in postbaccalaureate study depends on the character of his data--we do not know to what extent it addresses the issue of quality by field of undergraduate study--and the use to which his results are put in recruiting activities. His data base, however, and his own interests in the quality of the minority baccalaureate pool, may be a fruitful source of further study by him.

The COFHE Senior Survey of post-college plans may tell us, among other things, about the decisions of minority baccalaureates, and about the factors that influence those choices. The FIPSE/ETS study (referenced earlier) by Flamer and Horch of students who applied for need-based aid in order to attend graduate or professional school in 1980-81, which attends specifically to the question of minority students, may tell us a fair amount about the results of these choices, in that it considers the class of students who did not attend either graduate or professional school--"nonpersisters" in their analysis groupings. COFHE is exploring, with Flamer and Horch, ways in which these two data bases may be used in conjunction. One of the present authors (Anderson) enjoys a close working relationship with Flamer and Horch, and we are confident that this can be a productive joint effort.

An additional, and potentially rich, source of information is the Higher Education Research Institute in California. A recent book by Alexander Astin, president of the Institute, on minorities in all of American higher education, presents data, analyses, and recommendations that may be useful to the Commission. Although their treatment of graduate and professional education is somewhat superficial--a disturbing failure to refine the general categories of physical sciences, social sciences, humanities, and

the arts--the documents from which Astin and his colleagues worked, and additional information that their data may yield, suggest that their work may be a valuable resource. Their published work was clearly intended as a general overview, but they appear to be equipped to deliver a more refined study on the specific issue of minorities in Ph.D. education.

No survey of these issues would be complete without tapping the experience of the major foundations which have attended to minorities in graduate education over the past twenty years or so. Ford, Rockefeller, Danforth, Sloan, and Lilly have all sponsored fellowship programs and studies. Neither of the present authors has devoted sufficient time to considering the collective contribution of foundations in this matter. Someone like Fred Crossland, whose long-standing interest and work speak for themselves, could guide the Commission in this area.

As with all the matters we address throughout this presentation, quality is our principal concern. Although the problems faced by minorities in achieving parity in graduate education require special attention, from the perspective of those of us who wish to facilitate the entrance of the brightest of our youth into distinguished Ph.D. programs that foster, first and foremost, scholarly excellence, the problem is the same: talented youth continue to emerge with baccalaureate degrees from first rate liberal arts programs throughout the country, but we fear that those among them who choose the route to the Ph.D. at institutions best equipped to replenish the faculties in the next century, are too few in number. We stand in danger of losing not only one generation of scholars to other pursuits, however worthwhile they may be by some measure, but two or more.

Replacing the wave of faculty retirements that will occur toward the end of the 1990's with--in the worst case--mediocre faculty will block the opportunities for tenure for yet another generation. Given that it may take several years to establish an efficacious means for improving the quality of the Ph.D. applicant pool, particularly with respect to minorities, and given the fact that it takes twelve or more years to travel the road from the baccalaureate to tenure, we cannot begin too soon.

Part Five

In laying out either research agendas or policy recommendations as called for under 7(IV) to,

> ASSESS THE DESIRABILITY OF MODIFYING EXISTING FEDERAL FELLOWSHIP AND STUDENT ASSISTANCE PROGRAMS OR ESTABLISHING A NEW FEDERAL GRADUATE STUDENT ASSISTANCE PROGRAM.....,

it is constructive and a valuable exercise to outline briefly the sets of principles, programs, and participants--and wherein exist consensus and disagreement.

First of all, whatever the program(s), in a world of scarcity one must come to grips with certain basic decisions: (1) What is the optimal level of federal involvement? This is not a binary on-off switch, but rather the choice of a bit more vs. a bit less. To anticipate our conclusion, our recommendation would be that the level of support for graduate education is at present too low. (2) What is the optimal mix of programs--across disciplines, socioeconomic indices, institutional types? Should there be more sponsored research and fewer loans within a given budget, for example? On this there is agreement between us that the present mix is not optimal, but disagreement as to the direction(s) to go. (3) What are the criteria by which federal dollars, direct or indirect, are going to be rationed across all potential claimants?

Secondly, we have tried throughout the paper to refer back, at least implicitly, to the two criteria presented in the Introduction--national interest and access--for federal involvement in graduate education in

discussing factual material and in suggesting research; we will continue to employ these two criteria in Part Five in making policy recommendations.

As we have tried to point out at various junctures, graduate education, or undergraduate education for that matter, is not a monolithic entity. There are over 3,000 undergraduate colleges in this country (almost 1900 of which grant BA/BS or BSE-type degrees) that filter down to just over 300 doctorate-granting graduate schools. These 300-plus institutions turn out an average of 100 Ph.D.'s (or equivalent) degrees annually. There are obvious honest differences of opinion, needs, and emphases within this graduate education community. For example, some people take very seriously the notion of an "oversupply" of Ph.D.'s, using academic job openings vs. degree production as a rough indicator, in certain disciplines--now and for the next ten to fifteen years. Those individuals thus place emphasis on quality and want to see private and public subsidies/encouragement go to those who will contribute most to the advancement of knowledge. That position has probably been best articulated by William Bowen of Princeton in his 1981 President's Report (copy submitted). Others either downplay job aspects or dispute Bowen's employment projections, and tend to define "quality," "contribution," and "national interest" more broadly. Some disagreements, in fact, turn on precisely how one interprets such terms.

Each of the concentric circles in Figure 1 has its constituencies, positions, and "hired guns." The smallest circle contains what are generally understood to be the leading research universities, both public and private, in the Nation (distinguished departments and programs, and smaller but highly distinguished research enterprises--some of these highly specialized--

residing elsewhere, are of course not captured by our rough definition). A subset of this group comprises nine of the ten independent universities plus the University of California-Berkeley known as the DWARFS, an informal association of graduate school deans who meet regularly to share information on common concerns, a perspective, the Commission should note, that conditions some of the authors' presentation. These universities have a strong preference for "portable" fellowships and sponsored research as principal means for graduate student support. Differences among these twenty universities--"prestige" and reputation as thought to be perceived by undergraduates and the faculty who teach them chief among them--account for varying degrees of advocacy for loans and for College Work-Study funds, and for "institutionally-based" fellowships (like NDEA IV or NSF Cooperative Fellowships and Traineeships), but invariably an advocacy predicated on high quality. Merit is an overriding consideration.

The two inner circles (of approximately 50 institutions), members of the AAU (and its graduate arm, AGS), have common purposes, and they also place federally sponsored research and "portable" fellowships high on their list of priorities, but tend as a group to attach greater relative importance to guaranteed loans and College Work-Study funds, and to "institutionally-based" fellowships, than does the smaller subset of twenty or ten (although these, as we have noted, have local concerns that may resist unanimity). Quality again tends to dominate the issue of access--it is the nexus of these not altogether separable considerations that generates some heat and much light. Graduate education to a fair extent, defines itself and refines its purposes on this amicable battleground. A position

paper on the federal role in graduate education is being prepared currently by the AAU-AGS leadership and will be reviewed by the members in October. (We have included a preliminary draft as a source document for the Commission.)

The widest circle in Figure 1 contains the inner two as well, but is predominantly populated by the 250 or so remaining graduate institutions, private and public, whose programs range from M.A.-only to the Ph.D., from the marginal to the excellent (in certain cases), or the near-excellent. This heterogeneous set of 250 institutions owes allegiance to the Council of Graduate Schools, whose leadership must be responsive to their missions even as it speaks for the needs of the smaller constituency of research universities. The totality of these claims results in what often appear to be conflicting goals, and for the much-flouted inability of "graduate education" to reach a consensus or seemingly to speak in anything but a babble of voices. Who can agree that one superb scholar, preoccupied by an arcane subject of obscure practical utility, is worth more than a young man or woman of modest ability, whose horizons have been widened by an M.A. program at a school we never heard of? In the matter of federal emphasis, the authors are inclined to think they know the answer, but the leadership of CGS has no such luxury--and perhaps no such inclination. Thus, the advocacy for heavily subsidized loans, for College Work-Study funds to subsidize many forms of employment (not only, or principally, to facilitate academic apprenticeships) and "institutionally-based" fellowships that seek out talent in a less discriminating way. "Access," with a high degree of subsidy--financial "need" as opposed to an absolute standard of "merit"--

will be an important consideration, if not a guiding principle. If the argument between "access" and "quality" in the AGS institutions can yield a useful synthesis, in the context of the larger universe of graduate schools it can lead to bloodshed.

Thus no matter where one draws the line or alters the distribution, reasonable people--and sizable educational and political constituencies--are going to disagree. The authors' own allegiances and tugs tend to run the gamut, but our areas of accord far outweigh areas in which we disagree; what a less careful reader might consider opposing views, the careful reader should discern as only differences in emphasis.

Existing federal graduate-student assistance programs, as noted in Part Three, are as varied as the programs, institutions, and students they support. That such a wide array of programs exists at the federal level need not present difficulties. The pluralistic world of graduate education demands it--figuratively and literally. In part the role of the public sector, acting in concert with the private (corporate and foundation) sector, universities, and students/families, is to complement, encourage, and lead. But that such an array exists more in response to special-interest lobbying than as a result of a carefully coordinated, comprehensive plan should be of some concern, and is a general problem we must address.

Although broad in scope, the study of graduate education, by virtue of its provenance, has the specific purpose of providing direction for future amendment and extension of the Higher Education Act of 1965. This observation seems to us especially relevant to Section (IV) of the study and to Section (d)(2) of (8)(B), which requires that "any recommendations and reports...which contemplate changes in federal legislation shall include

draft legislation to accomplish the recommendations." These conditions suggest that it is altogether appropriate to pay special attention to Title IX of the Act, which is devoted exclusively to Graduate Programs.

As it is now constituted, Title IX lacks the coherence required of legislation suited to the needs of graduate education for the next decade or more. Created originally by the Education Amendments of 1972, it was an attempt to consolidate existing categorical programs under one new authority. In the absence of a unifying principle or set of principles, subsequent amendments simply underscored the somewhat portmanteau nature of the legislation.

We understand that the mandate for the present study was issued to allow a reconsideration of the present and future needs of graduate education and to pave the way for fresh legislation. Such legislation would articulate coherent principles, but not seek to perpetuate or establish categorical programs, whose value and importance may vary over time and whose purpose could be better defined and justified in forums more suitable than the re-authorization process. (Obvious examples are public-service and mining fellowships.) From our perspective it would also be useful to disentangle "graduate" education from professional education, which arguably are too often lumped together in all their forms because they ordinarily have in common the requirement of undergraduate preparation and a baccalaureate degree

What we envision is a new Title IX that would address both the question of access and the question of quality as these are defined in the context of graduate education in the arts and sciences, taking into consideration the different settings, principally public and private institutions, in which

graduate education takes place. Access, as it has been defined for a decade or more, refers to policies that guarantee a student admission to, and the ability to afford, at least one college or university. Guaranteeing access to graduate education, in the sense of guaranteeing admission, is not a responsibility we would urge on the Federal government. Ensuring that the most talented of our youth are not precluded from graduate education solely on financial grounds is, we take it, a public responsibility, but one that should entail little or no subsidy. Simply assuring the availability of resources to students without present means or collateral (loans, for example, at or near market rates, depending on future ability to repay them) strikes us as an adequate federal role. Ensuring quality and excellence, however, by encouraging the brightest of our youth, regardless of their financial circumstances, to enter and to remain in graduate education, does require subsidization to various degrees, if only to offset foregone opportunities for more immediate financial rewards.

Although in practice the issue of access, as we have defined it, cannot be separated so neatly from the issue of quality, we think that the distinction offers a useful formulation for evaluating existing programs and devising new ones. Financial aid mechanisms that address access will tend to consider the financial need of the recipients and to require little or no subsidy; those that address quality will tend to be based on merit, with little or no attention to the financial circumstances of the recipient, and should entail a considerable subsidy. These categories suggest, at one extreme, loans at market rates, and at the other, grants or fellowships that pay full tuition and provide an adequate stipend for living expenses.

A new Title IX would also deal with the question of choice, defined in a way that is relevant to graduate education in the arts and sciences. Choice must be considered with reference to the question of quality, a characteristic which, while it is not exclusively the concern of graduate education, is singularly relevant, in our judgment, to engaging the public interest in advanced study in the arts and sciences. A talented student should be able to choose a program of the highest quality without regard to price, and an excellent department at a lesser-known university should have the same access to resources to attract first-rate students as comparable departments at, say, Harvard or Yale.

Finally, a new Title IX would address the special nature of graduate education in the arts and sciences. Mechanisms for providing financial assistance to students in the early stages of graduate study may differ from those required in advanced stages. Those that fit the environment of most low-cost public universities may differ from those required at high-cost private or some public ones. We think that a careful analysis, with quality as the yardstick, of the several strategies employed by graduate schools to identify and nurture excellence, and of the several settings in which those activities take place, will result in a coherent array of financial aid mechanisms, with the single purpose of preserving and strengthening, but not necessarily enlarging, the best that graduate education can offer as a national resource.

We think that purpose can be best accomplished by creating an authority that attends to the special concerns of graduate education in the arts and sciences, as distinct from the various forms of professional education, and

that addresses the issues of access and choice in the context of quality, as distinct from the more egalitarian thrust of Title IV and undergraduate education. In the matter of scholarship, as distinct from vocational training and the proper motive of maintaining an educated populace, a concern for excellence must rise above all other considerations.

This is not to say that the enhancement of employment prospects, upward economic and social mobility, and the need for trained manpower (as these are identified from time to time) have no place in the calculus of graduate education. Students in large numbers should certainly not be led or drawn blindly into areas for which employment prospects are slim, and the graduate community, acting also in the public interest, should be as responsive to contractionary conditions as during periods of warranted expansion. But the salient characteristic of advanced study in the arts and sciences is scholarly excellence, which allows graduate education to remain true to itself and to stand ready to play the roles that society, from time to time, calls upon it to fill. Graduate education can best serve all its public purposes, as they rise and fall in importance over time, if an enlightened public policy ensures its vitality over time. An expression of public concern for the quality of graduate education in the arts and sciences, embodied in a separate Title of the Higher Education Act, would set a standard of expectation for all who seek its benefits.

We understand that the impetus for the study of graduate education to be undertaken by the National Commission was the imperfect attempt of concerned graduate educators (AAU, AGS, and CGS, in the main) to effect changes in Title IX and Title IV of the HEA during the reauthorization process in 1980.

Those efforts were viewed, especially by the House Subcommittee on Post-secondary Education, as tinkering with Title IX, without a consensus and without a coherent guiding principle, and as poaching on Title IV (considered the province of undergraduate education). The mandate for the study, and particularly section (IV), was a call for a more considered approach to the question of apt financial aid mechanisms to suit the diverse needs of graduate education, particularly in the areas of the humanities and social sciences.

We think it would be useful for the Commission to acquaint itself with the efforts of these graduate educators, and with the pronouncements and analyses that flowed either directly or indirectly from them. We therefore draw attention to a series of documents that bear on the issue (and most or all have been submitted as source documents); almost all of these emanated from high-cost, private universities, and their application to public universities must be considered with caution.

1. On July 16, 1979, the AAU submitted proposals to Mr. Ford, Chairman of the Subcommittee on Postsecondary Education, urging among other things a modification of Title IV that would extend SEOG to first-year graduate students, but the notion was rejected. A proposal based on the AAU documents was subsequently urged on the Senate by CGS, resulting in the creation of Part D--National Talent Grants for First-Year Graduate and Professional Study.

2. Argument for a separate Title (within the Act) for graduate education in the arts and sciences is amplified in a paper prepared by one of the authors (Anderson) for the AAU during the 1980-81 academic year. The principal burden of this paper is an attempt to describe the actual process of graduate education (which differs significantly from that of other forms of postbaccalaureate education) in relationship to financial aid, and to suggest the ways in which the interests of the federal government, the private sector, universities, and individual students relate to each other. The paper was part of an effort to create an agenda for AAU, with the frank purpose of contributing to the work of the National Commission one of its main goals.

3. The AAU since has issued a statement on its priorities in the matter of financial assistance for graduate students. Although the statement is not supported by data, the Commission will appreciate the achievement of arriving at a consensus among these presidents, who represent a diverse set of universities, both public and private.

4. The annual report for 1980-81 of William Bowen, President of Princeton University, together with his statement on The Role of the Federal Government in Higher Education and his congressional testimony reflects the views of a relatively small private university, one that is perhaps more selective than most in the admission of graduate students, on the question of financial aid and how these programs might be modified to fit an environment in which smaller numbers of Ph.D.'s may be required.

5. The recent Report of the Commission on Graduate Education at the University of Chicago, and in particular the section on financial aid, provides useful insights from the perspective of a large private graduate school, one that is perhaps less selective in the admission of graduate students than the handful of universities with especially strict views about admissions. The problem at Chicago, and at many other first-rate universities with flexible admission policies, is how to use limited financial resources to ensure the quality of their Ph.D.'s.

6. A report prepared for the AAU by Robert Rosenweig, of Stanford University, explores the question of financial aid for graduate students and comments specifically on the question of fellowships for minority students.

7. Data collected by Ernest Frerichs, formerly Dean of the Graduate School of Brown University, should speak to the importance of College Work-Study funds for graduate students. These data may support the notion of a Graduate Work-Study program aimed primarily at enhancing teaching and research opportunities, which form an integral part of the education of graduate students. Clarence Ver Steeg, Dean of the Graduate School at Northwestern University, is a strong advocate of the work-study program and feels that because there are no longer-range subsidies involved, as there are with loans, the costs may be more reasonable.

8. There are a host of "quality" ratings, mostly all flawed or dated, that the Commission might want to see. Allan Cartter's work, updated (but now dated) by Roose-Anderson are two sources. We offer without comment or recommendation the 1980 Gourman Report as another source. A forthcoming Hanley-Jones assessment is another attempt. Ladd-Lipset (1979) offers a good, but limited, perspective. Given the Commission's concern with excellence in the arts and sciences, it cannot disregard the need for valid assessments of graduate programs.

9. The COFHE Graduate Research Project is positioned to provide additional research on any number of topics and, within a six-month time frame, may be able to offer significant assistance to the Commission.

10. Robert Bock from Wisconsin has just completed a major study on manpower projections and needs. (There are, of course, other studies of the Ph.D. labor market. Kuh and Radner's work for the Carnegie Commission, cited in the Technical Appendix to the Princeton study, is one source; Richard Freeman at Harvard is a knowledgeable source; as is Stephen Dresch at IDES in New Haven.)

In addition to laying out basic principles, the context of the graduate community, sources of data and positions, and our sentiments about the general direction and framework that we think appropriate for federal involvement in graduate education, we close with a set of more specific recommendations. The ideal world for us would certainly include many of the federal programs now in place, though (a) with some modifications (below), (b) at an expanded level in many cases, (c) perhaps with a slightly different mix, and (d) informed by coherent principles of organization, i.e. complementariness, instead of piecemeal responses to pressure groups. (We would like to see, however, the flexibility in programs--most likely fellowships--that would allow the federal government to respond quickly and effectively to shifting national and technological needs. But we do not see this preference as at all inconsistent with our recommendations.)

Consistent with the criteria presented, we would like to see a firm, and larger, commitment to federal fellowships. There are two models, and we see a definite value in each. A program of block grants, awarded directly to universities with attention to their quality and individual educational purposes and needs, would best serve the aim of associating promising

students with the set of institutions, or departments, as determined by peer review, that can best nurture them. Models already exist such as traineeship-type awards (NIH and FLAS/NR). The responsibility here rests with institutions and departments to promote established programs, or to formulate new ones, that are in the national interest, that reflect and encourage quality, and that are attractive to talented young scholars. Such fellowship programs would also provide flexibility for the government to respond, as we stressed above, efficiently and effectively to changing emphases and needs at the national level. They will also allow first-rate departments at perhaps lesser-known schools to compete fairly for talented students.

An essential complement to such a system of incentives is a broad program or programs of "portable" merit fellowships, awarded on a national basis to the most talented, that the students can carry to the universities of their choice. The NSF Fellowship program and the now-defunct private efforts of Danforth and the Woodrow Wilson Foundation offer the obvious models. Part B of Title IX (1980 amendments) would provide, if funded, an important complement to merit fellowship support in the sciences; such a federal commitment is currently lacking for the humanities and some social sciences. Portable programs recognize, and respond to, the needs of talented individuals and provide both the goal and incentives for these people to pursue graduate study. (We recommend that the Commission consider for any federal fellowship program the restriction imposed under the new Mellon program that no more than 10 percent of the Fellows can attend any one institution.)

Together these two components of a grant program, combining the perceptions of intelligent students and of knowledgeable scholars, would ensure a flow of the finest students through the finest graduate programs the Nation can offer. For both programs we feel that quality or "merit" should be the sole awarding criterion in allocating monies to students, though departments or institutions could, in the case of block grants, possibly be required to supplement, from their own general revenues, these awards.

As mentioned repeatedly, we feel that federally sponsored research, primarily in the sciences and engineering, has been and should continue to be a major component of any federal aid to graduate education. The concepts are based on sound logic; the mechanisms are quite feasible and efficient. (In fact, the same principles can be applied to both institutional fellowships as presented above and to a similar modification or option for loan programs described below.) Our decided preference in this area, however, would be for a slightly expanded role for research and perhaps a broader interpretation of sponsored research that would encompass disciplines now excluded.

We also see a value in the concept and current uses of the College Work-Study program. It is essentially a set of block grants to institutions that both responds to "need" and permits self-help in ways that have positive academic benefits as well. We share the high regard that colleagues from institutions from one end of the spectrum (or at one point in the matrix) to the other have for the importance of and worthwhile experiences with the CW-S program. It is a positive, efficient way to respond to the access

question and to the financial needs of individual students. It is also a means to engage highly-qualified graduate students in apprentice teaching and research in those disciplines where institutional funds are insufficient.

Finally, and purposefully, we come to the vexing issue of graduate-student loan programs. We want to reiterate our complete support for the GSL program and graduate student eligibility in it. To exclude graduate students from the program, and force grossly inferior substitutes upon them, would do irreparable harm to the vast majority of graduate schools and needy graduate students in this country. We couldn't be firmer on this point.

Nevertheless we are less than sanguine about loan programs that contain a "blanket" subsidy to all who participate. That appears to us to comingle unnecessarily the criteria of national interest and access. As long as sizable subsidy elements are present, some rationing device or mechanism to distinguish some borrowers from others should be employed. We see the control of costs as inherently proper and expedient; otherwise, we run two risks: (1) abuse or spiraling costs may create a hostile environment in which a hastily drawn and unwise alternative (such as the proposed elimination of graduate students from the program) gains momentum, and (2) the costs of the program prevent adequate funding in other areas of graduate education (fellowships, research, or work-study).

The other end of the spectrum--no subsidy at all but full continued participation--is not, in our opinion, a good solution. There are certainly national-interest aspects to loans--for human capital formation in this

country, as supplements to other resources to come up to the level of a student's cost of education, and as a further inducement to the very talented to pursue graduate education and to move toward certain careers. Also, data on manageable debt burdens may well suggest that we would be inviting longer-run problems by not easing the financial constraints.

There are many options available in the broad middle ground, and we urge the Commission to consider them carefully. (We anticipate that the research paper for Section 8 will provide more concrete material and elaborations of these modifications.) The following approaches do not exhaust the set of alternatives, but they offer feasible, responsible schemes that are in keeping with the spirit of, and criteria for, federal involvement in graduate education:

(1) One could reduce, using the old NDFL/NDSL guidelines, the loan principal by some percentage for each year employed in a certain occupation;

(2) One could have a program through which students in certain occupations could apply, but only after completion of the doctorate, for remission of part of their loan obligations--on grounds of either occupation or income level (or repayment could simply be on an income-contingent basis);

(3) Loans could be allocated in block grants to individual institutions (who would then allocate the funds to the most needy or talented--or whatever criteria). A periodic review of the uses of the loan funds, default rates, and perhaps Ph.D. production at each institution before making subsequent rounds of awards.

(4) To stop "nth-year" borrowing, one could set a deadline (five years?) or timeclock for the time in which a student would be eligible to borrow--or at least at below-market rates. A variation would be to limit the full GSL subsidy to students in their first two years of graduate school; subsequent borrowing would have to be at market rates (which would encourage institutions to provide more support for those students who had completed coursework and were thus moving into the dissertation stage of their programs).

We are mindful of the administrative complexities involved and of the difficult task of fine-tuning any one of them in the heterogeneous setting of postbaccalaureate education. All such approaches will have a sufficient number of benefits and deficiencies--of proponents and detractors--to create divisiveness, and therein lies the risk we are loathe to run. Nevertheless, the handwriting is on the wall. Enough has been said about borrowing by graduate and professional students--about manageable debt, varying ability to repay, fields in the national interest, about access, choice, and quality in the realm of education beyond the baccalaureate--to lead us to conclude that a loan program (GSL) designed principally to address the question of access at the undergraduate level does not fit the various circumstances of most graduate and professional students. Indeed, agreement on differences among these students, rather than invidious comparisons, may well result in cost-effective loan provisions for discrete populations of students too often tarred with a single brush.